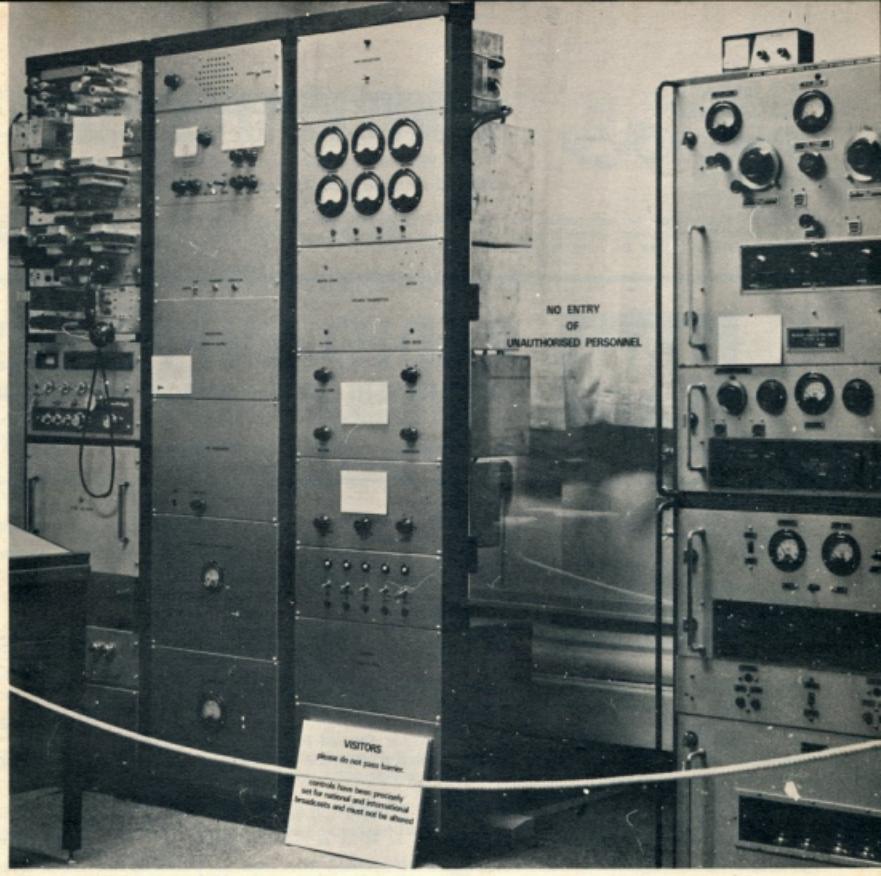


amateur radio



VOL. 43, No. 5

MAY 1975

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FRONT COVER

The equipment racks of amateur radio station VK3BWI/VK3AOM permanently on display at the Melbourne Science Museum. See story on page 9.

Photo courtesy of Science Museum of Victoria, Photographic Section.

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NOVICE LICENCE APPROVED
See Page 22

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Plenty of bargains for the radio amateur or the hobbyist owing to the recent tariff cuts. We have obtained large quantities of components, test equipment, complete and incomplete radios, transceivers, tape recorders, panel meters, valves, transistors, transformers. All at throw-away prices. Be early. Plenty of Opening Specials.

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\$3.00 EACH

amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA, FOUNDED 1910

MAY 1975

VOL. 43, No. 5

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Moorabbin, 3189. Tel. 95 6462.

The Wireless Institute of Australia exists to provide a service for its members. Australians who are interested in amateur radio.

However, like many similar organisations, it has reached the stage where it cannot function effectively without paid staff.

The amount of work which can be expected from unpaid volunteers becomes increasingly difficult due to the many side attractions of the affluent society in which we live.

But paid staff means more money. More income from more members.

Why are only 50 per cent of the licensed amateurs in Australia members of their own radio organisation?

Surely not all of those 3000 non-members are inactive, or freeloaders. (Freeloaders. Non-members who reap the benefits of the expenditure of time and cash of members.)

If they are not members because of disenchantment with policies, facilities, or even personalities, then they are burying their heads in the sand.

They should become active members of the Institute and bring about change. After all, the Institute is only as good as its members, and it is a society of amateurs for amateurs.

One school of thought is that "AR" should provide the additional income. But "AR" barely stands on its own feet.

If the content was widened to include hi-fi, stereo, and other general electronics, the public may be interested in buying it on the news-stands. But then the magazine would cease to be "personal" to amateur radio.

How long is it since you put something constructive back into this fascinating hobby of ours? Attended a meeting, submitted an article to "AR", assisted one of the many groups in the Institute, signed up a new member?

Or are you just a taker?

The Wireless Institute of Australia is your society. And without your active assistance, IT WILL NOT SURVIVE.

BILL ROPER, VK3ARZ

MARITIME MOBILE, LAKE EYRE

Plans are well advanced for an expedition of Melbourne amateurs to Lake Eyre during May. Two members of the Publications Committee (VK3ABP and VK3YFF) among others, expect to operate maritime mobile on the HF bands from a sailing

boat for a period of about two weeks. It is also hoped to provide good publicity for amateur radio as well as Australia's impressive inland sea by producing a documentary movie of the expedition. Lake Eyre has been full of water for about two years and looks like remaining full for some time to come.

making the most of mercator

part 2 —

A. M. Phillips VK5ZU
27 Prospect Terrace, Prospect, SA 5082

SATELLITE TRACKING

The methods outlined in Part 1 (AR November 1973) are further developed to plot the path of a satellite in near-circular orbit and to determine its position in space and time with respect to a given observer, by use of a simple overlay.

THEORY

The track of a satellite in circular orbit is typically as shown in Fig 7. It can be shown that the latitude of point B and its longitude with respect to point A, the ascending node, are related to the orbital inclination (angle BAC) and the orbital travel (angle AOB) as follows:

$$\begin{aligned}\sin \text{Lat } B &= \sin BAC \cdot \sin AOB \\ \sin \text{Long } B &= \cos BAC \cdot \sin AOB \\ \cos \text{Lat } B &\end{aligned}$$

Also, if "t" is time from ascending node
Orbital travel angle AOB = $t \times \frac{360}{\text{period}}$

If time intervals of four minutes are used in calculation, allowance can be made for the rotation of the earth simply by adding one degree of longitude for each four minutes.

Calculated data for the orbit of Oscar 6 is given in Table 2 and plotted in Fig 8.

Fig 9 shows the path of Oscar 6 in elevation. For a given elevation, "E", the angular range "R" can be computed as follows:

$$\sin F = 6370 \sin(90+E)$$

$$7830$$

$$R = 90 - (E+F)$$

giving the following values:

Elevation E

(°)	0	15	30	45	60	75
-----	---	----	----	----	----	----

Range R

(°)	35.6	23.2	15.2	9.9	6.0	2.9
-----	------	------	------	-----	-----	-----

Circles of constant elevation (range), when plotted on a Mercator chart will appear as shown in Fig 10. The points of intersection of these curves with lines of given bearing at point A can now be computed, using the formulae derived in Part 1 and above as follows:

Given:

Example

Latitude "a" of reference point 35 deg

Bearing "b" at reference point 45 deg

Range "R" from reference point 23.2 deg

Compute:

$$s = \cot b \cdot \sec a \quad 1.221$$

$$y = \arctan[s^2 + \tan^2 a] \quad 54.6 \text{ deg}$$

$$x = \arccos \frac{s}{s^2 + 1} \quad 29.8 \text{ deg}$$

$$\frac{\tan y}{s^2 + 1} \quad$$

$$0 = \arcsin \frac{\sin a}{\sin y} \quad 44.7 \text{ deg}$$

$$0 + R \quad 67.9 \text{ deg}$$

$$\text{Lat } P = \arcsin [\sin(0+R) \sin y] \quad 49.1 \text{ deg}$$

$$\text{Long } P \text{ (from point 0)} = \arcsin \dots$$

$$[\sin(0+R) \cdot \cos y] \quad 55.0 \text{ deg}$$

$$\text{Long } P - x \quad 25.2 \text{ deg}$$

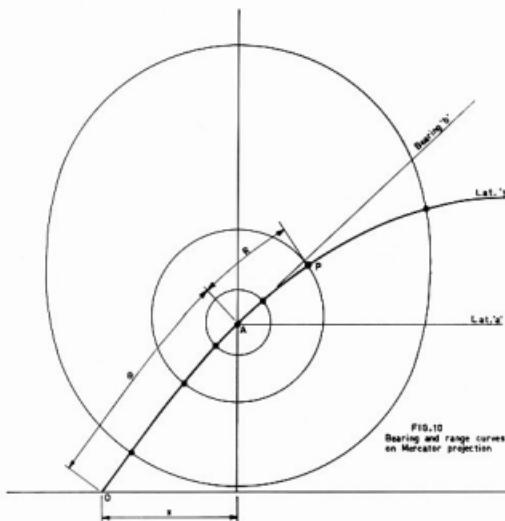


FIG 10
Bearing and range curves
on Mercator projection

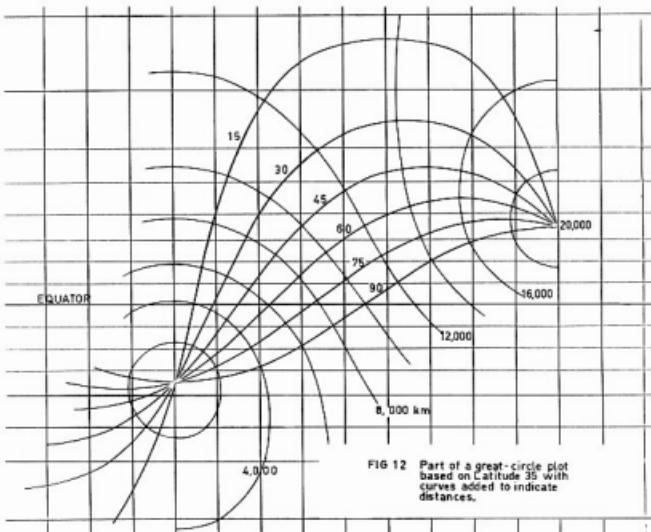
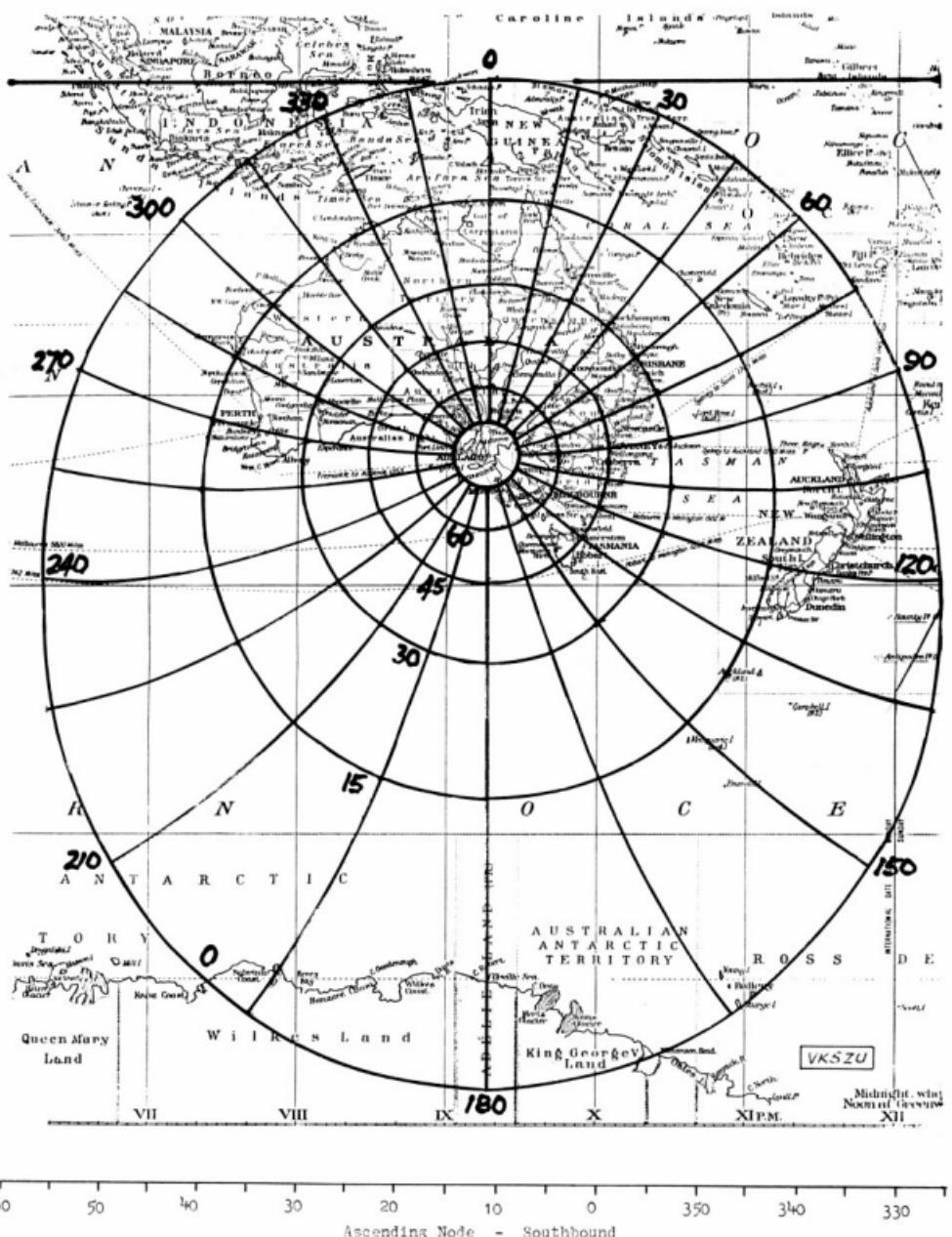


FIG 12
Part of a great-circle plot
based on Latitude 35 with
curves added to indicate
distances.

Ascending Node - Northbound

250 240 230 220 210 200 190 180 170 160



Fantastic Offer

TEN SETS TO BE GIVEN
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- 5 Helical Resonators in Front End
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- Audio Output 1.5W into 8 Ohms
- Power Requirements 13.5V ± 15%

The IC22A is Icom's new and improved version of the very popular IC22. The IC22A is ideally suitable for home or mobile use. We are offering this unit with 3 channels, i.e. channel 50 simplex and channels 42/54 and 48/60 repeat.

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NEW ICOM IC22A

Dick Smith has purchased a huge shipment of the very latest Icom transceivers.

Not only is this unit to be sold at a very competitive price but EVERY purchaser will help his Division of the WIA to obtain a FREE IC22A.

For every ten units purchased, Dick Smith will donate one to your nominated Division or Club. These units are ideal for repeater use or WICEN emergency activities.

Yes, by making a large cash purchase of over 100 Icom IC22A transceivers, we have been able to get them at an incredibly low price. The savings are being passed on to you. The normal IC22A price is \$199 plus crystals at \$9.00 a pair.

We have the IC22A INCLUDING 3 CHANNELS of crystals (normal price \$217) for only \$200.00 (P & P Insured anywhere in Australia \$3.00).

PLUS . . .

YOUR PURCHASE HELPS YOUR DIVISION OF THE WIA
TOWARDS A FREE ICOM IC22A

Remember: • All units fully guaranteed 90 days

- Spares available
- Ex-stock availability

PLUS

- Our exclusive satisfaction guarantee — buy one, inspect it. If you aren't satisfied return it for refund less P&P costs. What could be fairer?

PLUS EXTRA SPECIAL 240 V AC - 12 V DC fully regulated power supply, normally \$32 — however if ordered with an IC22A — ONLY \$26.00 plus P & P \$1.50.

PLEASE USE COUPON TO SPEED DELIVERY

Dick,

Please rush me a brand new, fully guaranteed IC22A fitted with 3 channels of crystals.

Please allocate 10 sales points to the (club or section of WIA). I understand that when my nominated club/division gains 100 sales points you will present them with a FREE fully guaranteed unit.

Name _____ Callsign _____

Address _____

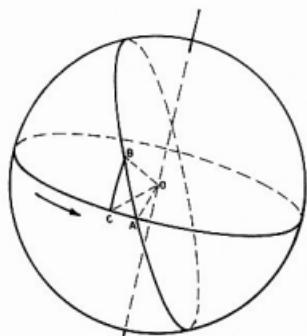


FIG. 7. Typical satellite orbit.

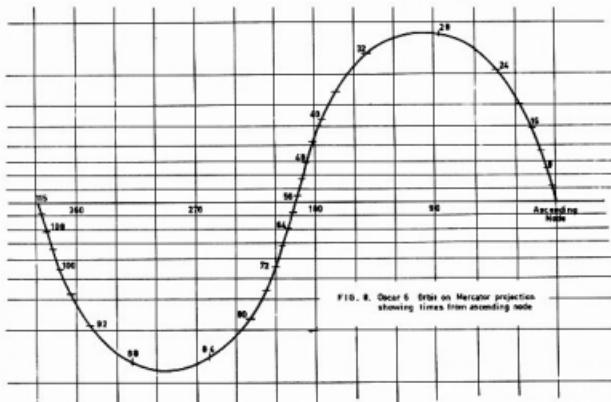


FIG. 8. Oscar 6 Orbit on Mercator projection showing times from ascending node

ASCENDING NODE - NORTHBOUND

255 240 225 210 195 180 165

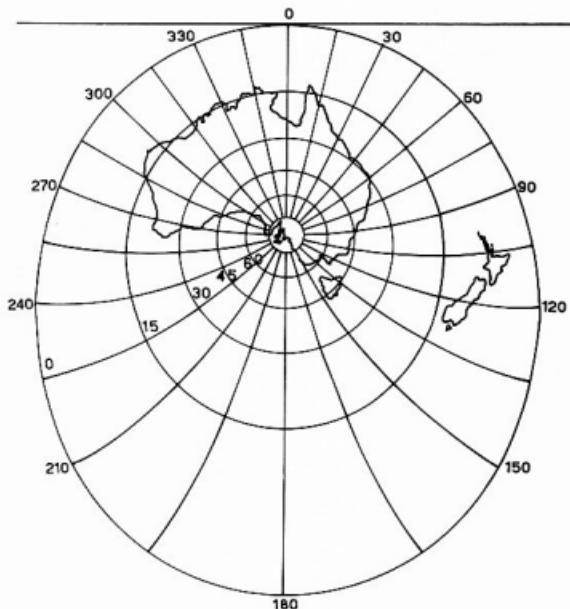
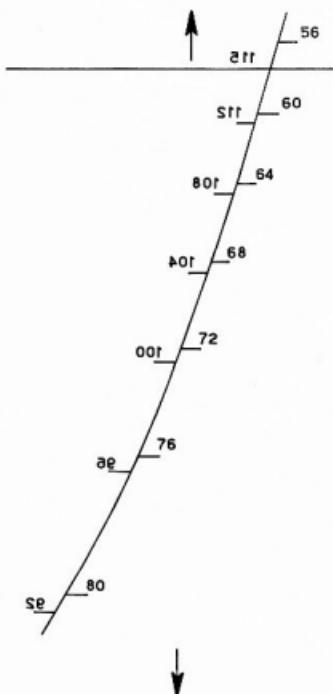


FIG 11 (a) Bearing / Elevation chart for Oscar 6
Altitude 1460 Km.



(b) Track of Oscar 6
(Latitude 0-70°S)
Showing times of ascending node

Repeat for all desired values of R—positive and negative. Repeat for next value of b.

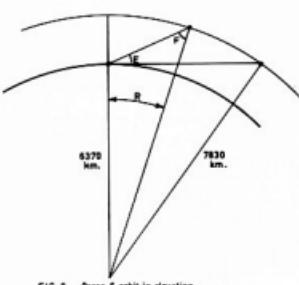
APPLICATION

Using a Sharp Model PC-1001 programmable desk calculator, the complete plotting data was obtained in less than half an hour. Another half-hour was required to carry out the manual plot, the result of which is shown in Fig. 11.

That portion of the Oscar 6 orbit from 56 to 82 minutes after ascending node was then plotted on transparency to the same scale. (Fig 11b). By superimposing the two plots, with due regard to the longitude of the ascending node, the time and bearing of acquisition can be read off directly and the pass can be tracked in detail.

To cover the northbound leg, the transparency was reversed and time-markers from 92 to 115 minutes were added, together with the appropriate index for longitude.

The most time-consuming part of the exercise is the calculation and plotting of the bearing/elevation curves. To simplify this, the problem was fed to a Hewlett Packard Model 9810A Calculator and its



associated X-Y plotter. The complete calculation and plot was then carried out in about two minutes.

Note: In plotting to Mercator's projection, if unit length is taken as one degree of longitude, then a point at latitude X will be $131.9 \log - \tan(X + 45)$ units from

the equator. 10 2

The method used above provides an alternative means of deriving the great-circles

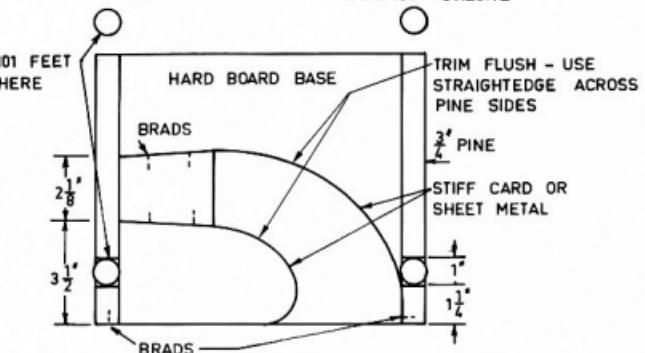
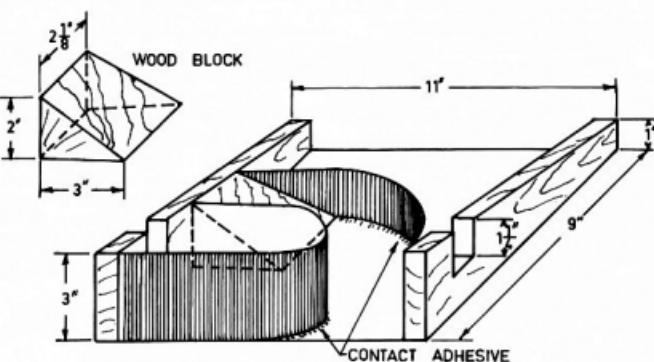
Time (mins)	Orbital Travel °	Latitude °	Longitude, deg W from ascending node		
			Earth stationary	Earth rotating	Mercury
4	12.5	12.3N	2.6	3.6	
8	25.1	25.5	5.4	7.4	
12	37.6	36.7	8.8	11.8	
16	50.1	48.7	13.6	17.6	
20	62.6	60.4	21.3	26.3	
24	75.1	71.2	37.3	43.3	
28	87.7	78.1	76.5	85.6	
32	100.2	74.6	131.6	139.6	
36	112.7	64.6	154.2	163.2	
40	125.2	53.1	164.0	174.0	
44	137.7	41.2	169.6	180.6	
48	150.2	29.1	174.4	185.4	
52	162.8	16.8	176.4	184.4	
56	175.3	4.6N	179.1	193.1	
60	187.8	7.7S	181.6	196.6	
64	200.4	19.9	184.3	200.3	
68	212.9	32.1	187.4	204	
72	225.4	44.2	191.6	206	
76	237.9	56.1	197.9	216.9	
80	250.5	67.4	209.8	229.8	
84	263.0	76.4	238.6	259.6	
88	275.5	77.1S	295.4	317.4	
92	288.0	68.7	328.2	351.2	
96	300.5	57.5	341.1	365.1	
100	313.1	45.7	347.8	372	
104	325.6	33.6	352.1	378.1	
108	338.1	21.4	355.4	382.4	
112	350.6	9.2	358.1	386.1	
115	360	0	360	388.75	

FOOTNOTE:

Received recently is data relating to the orbit of Oscar 7 which indicates that, for all practical purposes, it is identical with that of Oscar 6. The comparative data is as follows:

	Oscar 6	Oscar 7
Inclination (deg)	101.6534	101.7287
Period (minutes)	114.994355	114.944785
Regression (deg)	28.74897	28.736
Semi-major-axis (km)	7832.583	7830.336

The differences are so small — much less than the plotting accuracy of the diagrams, that they will apply equally well to both Oscar 6 and Oscar 7.



Try This

with Ron Cook VK3AFW
and Bill Rice VK3ABP

THE YAESU 101 AUDIO GIGSLICK

Most 101 users find it hard to think up an improvement. Here's one if you have an hour to spare. I have found it works so well that I am going to paint it! Build it and you can remove those magazines or such used to prop it up, place the rig on top, locate the front feet into the slots provided and hey presto, you have real beat out front sound and a 101 that looks you right in the eye. The unit has no ill effect on the ventilation and will also serve as a mobile fitting.

The Melbourne Science Museum Amateur Radio Station

Peter Cossins VK3BFG/T
and David Turner VK3ADE

To the majority of people, mention of the word 'Museum' conjures up images of dusty old bones fussed over by ageing recluses and a place once visited when very young, probably on a wet day.

This picture however, is not accurate. There are collections, some of which seldom see the light of day, but the Science Museum has many activities going on, and mechanised displays to demonstrate fundamental principles to the delight of both young and old.

Over the past 103 years of its existence, the Science Museum has engaged in various activities involving the general public including the training of telegraphists (1873), lectures on geology, chemistry, etc. and more recently (1965), lectures on astronomy in the planetarium and the observatory. The latter service is provided by the Astronomical Society of Victoria, utilising both their own and Science Museum telescopes. Also on the staff of the Science Museum are five teachers seconded from the Education Department, who give demonstrations both at primary and secondary level on sound and light, including a CCTV link via laser. Other technological topics such as development of musical instruments, transport and communications are illustrated with items from the collections.

The Museum is always looking for ways to increase its activities, and resulting from a chance discussion with Jim Lloyd VK3CDR, in late 1973, a joint WIA/Science Museum radio station was conceived. The main objectives of this station were:

- (a) to provide a facility to educate the public in radio communications, particularly amateur activities; and
- (b) to accommodate the VK3BWI broadcast equipment.

After agreement on facilities and services to be provided by both parties, a suitable site was selected for the station. Consideration was given to staff access and attraction of visitors' attention. Visitors number 500,000 per year (one seventh of Victoria's population). The position on the ground floor of a gallery facing Swanston Street, although a premier position for operation, was quite distant from suitable roof top antennas (HF — 130m, VHF/UHF — 30m). Good quality UR67 and FHJ (Heliax) co-axial cable was installed to overcome transmission losses. After nearly twelve months, stage one has been completed — comprising the installation and modification of VK3BWI equipment, the construction and installation of a control console, and a console with HF and VHF transceivers for the Museum station VK3AOM.

The VK3BWI console is a multi-program source, multi-output audio, system to drive the transmitters which are housed in racks.

RF feedback problems encountered were largely solved by the addition of LP filters inserted at strategic points within the console. Much of the equipment which was transferred from the old QTH at 478 Victoria Parade, was in poor repair and was given an extensive face-lift.

At the time of writing this article, the 432 MHz transmitter has been built but no antenna has yet been installed. All coaxial feeders are in a sealed duct and hence an interesting problem is posed for any further expansion of frequencies. The possibility of diplexing transmitters into the single cable feeding a dual resonant antenna is one possible solution.

As mentioned earlier, there are two foot top antenna sites, one directly above the transmitting room for VHF (which can be seen from Swanston Street) and one towards the rear of the building for HF.

Antennas are as follows:

- 160m — Vertical with top hats and counterpoise,
- 80/40/20 — Inverted vees (a tri-band beam and tilt over tower is planned for stage 2)

53.032 MHz — ½ vertical
52.525 MHz — ¼ G-plane
144.5 MHz — Stacked clover leaves
146.1 MHz — ½ vertical/10 element beam

432 MHz — Still in planning

From a public point of view the station demonstrates a range of equipment used by amateurs from the ex Navy A14 (80 and 40 Mx), amateur designed and constructed AM (160m, 2m, 6m, 70cm), modified commercial equipment (Ch 1, 6 FM), a 40m transmitter constructed from a kit; and state-of-the-art, a HF transceiver with digital readout and an autoscans VHF transceiver. Public demonstrations have commenced and acquisition of gear for RTTY, SSTV and UHF TV is planned.

Comparison of these wide ranging current activities can be made with items in the Museum's collection, such as the receiver built by Max Howden VK3BQ in 1923.

If you are interested in operating or demonstrating in your field of interest, please contact Peter VK3BFG/T on 03 231-2778.



Peter Cossins, VK3BFG seated at the operating position of VK3BW/VK3AOM. This photo was taken during the callback immediately after the opening ceremony.

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External VFO for the TS-520	\$80
CW filter for the TS-520-900	\$40
TV-502 2M. transvertor for the TS-520, just plug it in and switch over to 2M. SSB operation	\$200
Model QR-666 all-band coverage receiver	\$300

YAESU MUSEN

Model FT-101-B AC-DC transceivers	\$575
Model FT-200 AC transceivers with AC FP-200 supply \$400	
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model YC-335-D 0-200 MHz \$250

SPECTRONICS DD-1 digital counter for the FT-101-B \$150

All TRIO-KENWOOD & YAESU MUSEN transceivers come complete with original English manual, all crystals for all available bands, a P.T.T. dynamic microphone and a bonus free S.W.R. Meter.

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TH 3 JR 10-15-20 M. junior el. Yagi 12' boom	\$135
TH 3 Mk3 10-15-20 M. senior 3 el. Yagi 14' boom	\$180
TH6DXX 10-15-20 M. senior 6 el. Yagi 24' boom	\$225
204-BA 20 M. monoband 4el. full size Yagi 26' boom	\$190
HY-QUAD 10-15-20 M. full size Cubical Quad	\$200
Magnetic base mobile whip 108 MHz and higher with 18'	
RG-58U cable and coax plug	\$18
BN-86 baluns	\$18

CDR ROTATORS

AR-22-R for 2 & 6 M. and small h.f. beams	\$50
AR-20-R for 2 & 6 M. beams	\$40
HAM-II with re-designed control box	\$150
All three models for 230 V AC complete with indicator-control units.	
4-conductor light cable for AR-20-22	20 cents per yard
12-conductor light cable for HAM-II	30 cents per yard
8-conductor heavy duty cable for HAM-II	60 cents per yard

BARLOW WADLEY RECEIVERS

Model XCR-30 Mk II 500 KHz to 31 MKz continuous coverage communications receivers, crystal controlled reception of AM-USB-LSB-CW	\$250
--	-------

27 MHz EQUIPMENT

MIDLAND 5 W AM 23 channels transceivers, with PTT mike 12 V DC	\$95
MIDLAND 5 W AM 15 W PEP SSB 23 channels transceivers PTT mike 12 V	\$175
SIDEBAND Brand One Watt model NC-310 hand-held transceivers	\$50
SIDEBAND Brand 5 W AM 15 W PEP SSB 23 channels transceivers, with noise limiter-blanker, PTT mike, 12 V DC	\$190

144 MHz TWO METER EQUIPMENT

MULTI-T-10 10 W output FM transceivers, 24 channels with crystals for 10 channels 40 to 60, includes all Australian repeaters and anti-repeater operation, with PTT mike and mobile mounting bracket, 12 V DC operation, still only	\$225
KEN PRODUCTS KP-202 2 W output FM hand-held transceivers with the hottest receiver available anywhere, 6 channels now with crystals for channels 40 and 50 and all 4 repeaters \$150; KCP-2 battery chargers and 10 NICAD batteries \$35; Leather carrying case for the KP-202 \$6; Stubby flexible helical whip antennas for the KP-202 \$6.	
KLM ELECTRONICS solid state 12 V DC 2 M. amplifier, 12 W output, automatic antenna change-over when driven, ideal for mobile use with the KEN KP-202 \$50.	

All prices quoted above are net SPRINGWOOD, N.S.W., cash with orders, sales tax included in all cases, subject to changes without prior notice. No terms nor credit nor COD available, only cash and carry, no exceptions. All-risk insurance available for 50 cents per \$100 value, minimum insurance \$0.50. Allow for freight, postage or carriage, excess will be promptly refunded ... MARY & ARIE BLES, Proprietors.

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POWER OUTPUT METERS

Galaxy RF 550A with 6 position coax switch	\$75
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SWR METERS

Midland twin-meter type for 52 Ohms, up to 1 KW on hf	\$22
---	------

BALUNS

Japanese baluns, 1 KW PEP 75 Ohms impedance only	\$10
--	------

MOBILE ANTENNAS

MARK helicals 6 feet long	HW-80 for 80 M. \$18
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HW-40 for 40 M. \$18

HW-20 for 20 M. \$16

high power KW-40 for 40 M. \$25

tri-band HW-3 for 10-15-20 M. \$25

Swivel mobile mount & chrome plated spring for MARKS	\$12
--	------

ASAHI model AS-303A set of 5 whips 10 to 80 M.	\$90
--	------

Complete with ball mount and spring	\$90
-------------------------------------	------

AS-2-DW-E 1-4 wave 2 M. mobile whip	\$8
-------------------------------------	-----

AS-WW 1/2 wave 2 M. mobile whip	\$15
---------------------------------	------

AS-GM gutter clip mount with cable & connectors	\$10
---	------

M-RING body mount and cap for 2 M. whips	\$5
--	-----

COAX CONNECTORS

Amphenol VHF types Standard PL-259, Angle male-female, T-connector, RCA male to Amphenol female adaptor. All models	\$1 each
---	----------

CUSH CRAFT ANTENNAS

DGPA 52 to 27 MHz adjustable ground-plane	\$25
LAC-2 lightning arrestors	\$6

CRYSTAL FILTERS

9 MHz similar to the FT-200 ones, with 2 carrier crystals	\$35
---	------

POWER SUPPLIES

240 V, AC to 12 V DC 3 to 3.5 Amps, regulated	\$35
---	------

SPECIAL

KEN KP-12A speech processors, 230V AC, contain a complete SSB generator, 10-7 MHz filter, clipper, etc.	\$100
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a mini size field strength meter

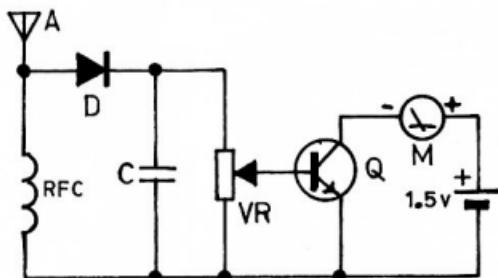
Maurie Evered, VK3AVO
13 Sage Street, Oakleigh, 3166

A field strength meter is one of those instruments that falls into the "useful but not essential" class. However, since this one was first constructed, it has worked overtime. I am sure other operators will find it as useful as I have.

This field strength meter could not be simpler. It consists of only seven components including the meter and battery. It was built on a piece of Veroboard and everything is mounted in a 4" x 2" x 1 1/4" metal box. The "antenna" is a piece of brass welding rod about six inches long. It passes through a rubber grommet and is soldered directly to the Veroboard.

The circuit is very straightforward. Transistor Q1 is normally non-conducting because there is no external bias applied to its base. RF voltage developed across RFC1 is rectified by D1 and applied to the base of Q1 which then conducts according to this rectified RF voltage. VR1 is to keep the meter reading at ½-¾ full scale deflection. Once this circuit is enclosed in its metal box it is virtually a DC one, so layout is of little importance. There is little more to be said about the instrument itself, it is so simple. However, a few words should be said about its use.

If the meter is used to measure relative transmitter output into the regular station antenna (as it is usually used at this QTH)



RFC-2.5 mH

D - OA91

C - .001

VR - 50k

Q - BC 108 (2N3565)

M - Any meter 0-1mA

(or more sensitive)

A - 6 inch length brass
welding rod.

then readings are quite straightforward and follow those obtained on the SWR meter in its "Forward" position.

The field strength meter is completely

independent of coupling to feedlines, and so gives added confidence compared to any other method of measuring that is used. Just sit the field strength meter in a convenient position on your operating table or desk.

If the meter is used to monitor antenna adjustments the situation is more complex because:-

1. The "antenna" of the field strength meter should have the same polarisation as the transmitting antenna under test.

2. Measurements should be made at a distance of several wavelengths from the antenna being tested. If made within one wavelength the meter may respond to the combined induction and radiation fields rather than the radiation field alone.

3. If an adjustment alters the angle of radiation of the antenna under test it may decrease the measured field strength at ground level although the total radiation level may have increased.

This meter has been used from 3.5 to 30 MHz satisfactorily. If it is to be used at 1.8 MHz with a low power rig it may be necessary to extend the short antenna with a piece of wire and a clip. If this is done it performs very well at this lower frequency.

This little meter is very cheap and easy to construct and once built becomes a very useful addition to the range of instruments in any shack.



In this photo of Maurie's nest station the field strength meter can be seen to the left of the FT101B.

the shack

J. A. Gazard, VK5JG
39 Glenhuntly St., Woodville South, S.A. 5011

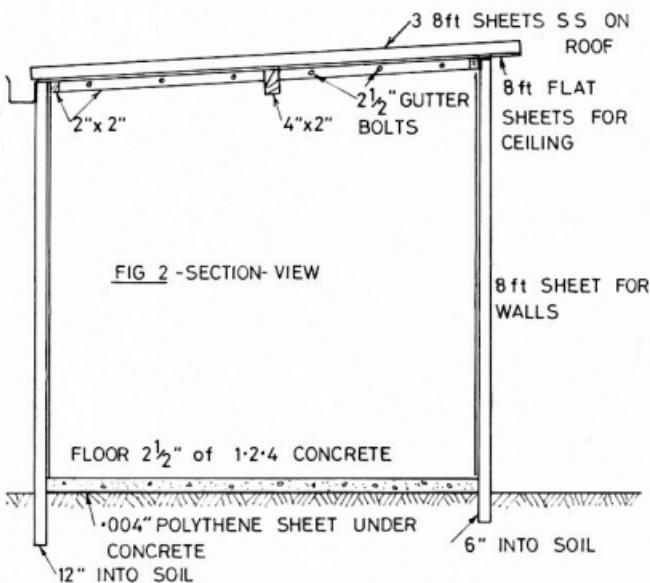
The construction of an outdoor building to house the amateur station need not necessarily require the services of a builder. VK5JG describes one way in which you may be able to "roll your own", subject, of course, to the agreement

All over the world the place in which the amateur operates his equipment is called "The Shack". The dictionary defines a shack as "a roughly built hut" and it is probable that the name evolved when in the early days, the roaring spark gap working late into the night made it necessary for the amateur to move into an outhouse so described.

Today, there are still advantages in having an operating room outside the main residence. Two of these are the ease of leading-in the aerial and the avoidance of interference with the remainder of the family. With the increase of new operators from Youth Radio and the coming of the novice licence, more shacks will be required and the following suggestion is offered for cheap and easy home construction.

MATERIALS

Common covering material for walls and roof are corrugated galvanised iron or asbestos cement sheets. The costs per square foot of galvanised sheets and 6 inch corrugated asbestos cement sheets are ap-



Double lap to allow roof overhang if AC sheet used

This sheet 5' high
with space over for window

SIZE APPROX. 10'x7'

Arrangement of sheets

Wall-8 off 8 ft. sheets
1 off 5 ft. sheets
Roof- 3 off 8 ft. sheets

DOOR

FIG 1

proximately the same. However "super six" asbestos cement sheets are sufficiently strong and rigid to stand up as walls, and support a roof without timber framing. Used thus they are by far the cheapest material for walls. Also, with no timber framing, erection is simple and no special skills are required.

The super six sheets have a wide corrugation at one side which laps with the narrow one at the other side. If two sheets are set up at 90 degrees with the wide corrugations together, it will be found that the edges overlap and can be bolted together with 1" x ¼" gutter bolts to form a corner.

LAYOUT

The layout of sheets for a 10 ft x 7 ft shack is shown in Fig. 1. Gutter bolts are used to bolt the edges of all sheets together.

The bottoms of the vertical sheets can be set in a shallow trench and backfilled and rammed to hold them upright during construction. The trench need only be 6" deep on the high side, and with a 6" root fall, will be 12" deep on the low side. It is best to lay out the walls flat on level ground first, with the laps nesting neatly, and drill the ¼" holes for the gutter bolts with a masonry drill. Bolts can then be inserted quickly during erection, which should not be done in a gale!

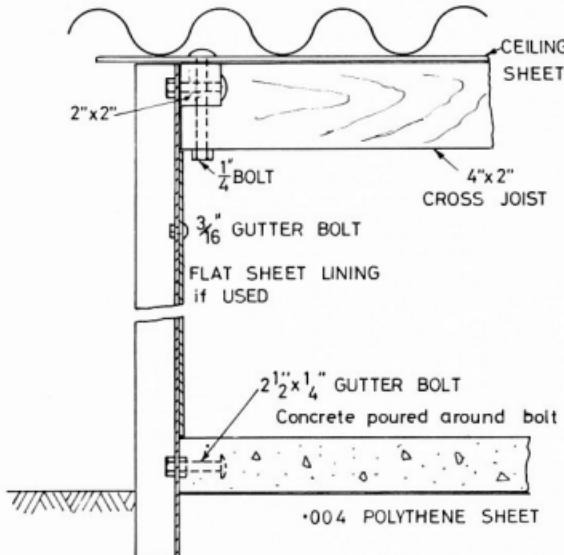


FIG 3 CONSTRUCTION DETAILS

PROCEDURE

It is possible for one man to erect the walls of a small shack in less than a day. The sloping tops of the side walls can be cut with a ceramic cutting disc set in an electric drill. Erection is commenced at one corner. The two sheets are carefully

set up at 90 degrees and clamped at the top with a G-clamp. Then the holes (4 per corner) are drilled and the bolts inserted. The corner will have sufficient stability to support two more sheets even if the trench is left unfilled. Around the top of

by using two bridge rectifiers as shown in the diagram. The motor is supplied with DC via a bridge rectifier from 240V AC. The field, which is still used in series with the armature, is connected through another bridge rectifier which causes it to retain the same polarity at its terminals regardless of the armature polarity, which is controlled by the switch in the shack.

the sheets, lengths of planed 2 x 2 inch timber are bolted to the asbestos sheets, with 2½" gutter bolts. This increases the rigidity and provides a method of fastening down the roof.

ROOF

The roof can be of galvanised iron or supersix. To provide a flat ceiling and block off the open spaces of the corrugations, sheets of flat asbestos are laid on the roof first and the corrugated sheets placed over them. Special screws are available for fastening the asbestos (if this is used) to the 2 x 2s.

When the roof is screwed down with two screws per sheet at each end, the structure becomes very rigid.

Aluminium foil can be laid between the flat asbestos and the corrugated sheet for heat insulation.

DOOR AND WINDOWS

One sheet left out of the wall provides a doorway and the use of a 5 ft sheet instead of an 8 ft sheet makes space for a window. The door and window frames can be made of 4 x 1½". The doors will not be standard size and so will have to be made to fit. It is suggested that doors be framed in 2 x 1 inch and 3/16" hardboard be glued and screwed to each side. For a 3 ft x 3 ft window, half (about 18") could be plain glass and the remainder louvres.

If it is desired to line the shack, flat asbestos sheets can be bolted inside to the super-six with 3/16" gutter bolts. This lining, which can be painted, greatly improves the appearance and insulation.

The shack shown in the sketches is 3 sheets by 2 sheets — approximately 10 ft x 7 ft but other sizes can be used. The largest shed built by this method has been 5 sheets by 3 sheets (16 ft x 9 ft). If super-six is used for the roof, one of the laps in the wall will have to be a double lap so that the roof will have an overlap at each end.

Try This

with Ron Cook VK3AFW
and Bill Rice VK3ABP

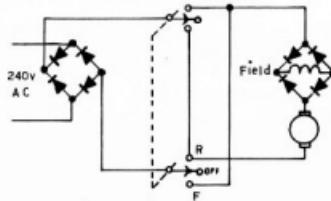
TWO-WIRE REVERSING OF AC/DC SERIES MOTORS

When the distance between shack and tower is a long one, it is desirable to keep the number of wires to the rotator down to a minimum. At the same time, those of us who make their own rotators find that the most inexpensive suitable motors are the series-wound AC/DC motors commonly used in electrical appliances. The problem is how to use these motors with the ON/OFF-reversing switch at the shack and still require only two wires to feed the motor.

The problem has been overcome here

by using a little motor that previously drove a blower. It was found necessary to change the field position slightly in respect of the brushes to obtain similar torque in both directions, and a filter has been fitted near the motor to cut commutator noise down. The diodes in the bridges are normal 400 p.i.v., 0.5A rectifier types.

'Tubby' Vale, VK5NO



Two-wire reversible AC/DC Series Motor.

MAY IS VHF/UHF

MANY NEW LINES IN STOCK OR ARRIVING SHORTLY
including the value-packed commercial quality PFT-203 TRANSCEIVER



The model PFT-203, originally designed for marine use in America, is a 30 watt plus, 25 channel mobile FM transceiver for the 2m amateur band. It is compactly housed in a metal cabinet of attractive appearance. The IF amp. frequencies are 10.7 MHz and 455 kHz, clear of HF amateur bands to reduce interference to a minimum. Excellent selectivity is assured by the use of a 2 pole crystal filter and three ceramic filters! A low pass filter is included in the antenna circuit for both transmit and receive. Incorporates power level adjustment and automatic SWR protection which does not cut the transmission on high SWR but reduces power according to SWR deficiency. Thus you can still transmit even with a relatively poor SWR . . . good for emergency, etc. situations. The use of a large area heat sink and PA transistor with power dissipation of 70W help to ensure trouble-free operation under arduous conditions. One channel provides priority "call-channel" operation.

TECHNICAL DATA OF PFT-203

GENERAL

Frequency Coverage	140-170 MHz, factory adjusted to the 2m band
Number of Channels	24 Channels plus 1 memory channel
Maximum Bandwidth per Unit	2 MHz
Mode	F3 (Phase Modulation)
Power Source	13.5V DC ($\pm 10\%$) Negative Ground
Power Drain	Receive 0.3A Transmit 5.0A/25W 1.2A/ 1W
Operating Temperature	-20°C to +55°C
Antenna Impedance	50 ohms
Microphone	Dynamic 500 ohms
Dimensions	61 mm (H) x 166 mm (W) x 215 mm (D) or 2½" x 6½" x 8 7/16"
Weight	2.2 Kgs or 4.8 lbs.

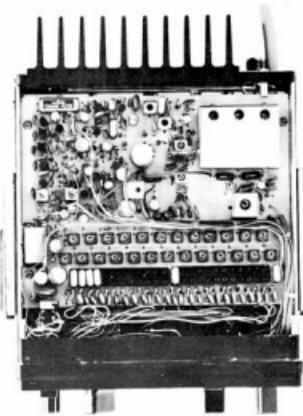
TRANSMITTER

Power Output	30 Watts or 1 Watt, switchable (max.)
Modulation	Variable capacitance phase modulation
Multiplications	12 Times
Frequency Deviation	12.5 kHz max. (adjustable)
Harmonics Spurious Radiation	2uW or less
Adj. Chann. Radiation	2uW or less
Frequency Stability	Not exceeding $\pm 0.001\%$ (-20°C to +60°C)
Mod. AF Response	0.3 to 3 kHz +6dB/Octave

RECEIVER

Receiving System	Crystal controlled double superheterodyne
Frequency Stability	Not exceeding $\pm 0.001\%$ (-20°C to +60°C)
Intermediate Frequency	1st IF : 10.7 MHz 2nd IF : 455 kHz
Sensitivity	0.5 uV or less at 20 dB QS
Selectivity	± 10 kHz at -6dB, ± 20 kHz at -80dB
Spurious Response	Greater than 60 dB
Spurious Radiation	0.002 uW or less
Intermodulation	At least 75 dB down at ± 25 kHz separation
Audio Output	1 Watt (less than 10% distortion)

INTRODUCTORY PRICE — \$228. Includes crystals for B and one repeater chan. (advise chan. required), microphone, mobile mount, etc. Extra standard channels only \$8.00. Prices include S.T. Freight or postage and insurance extra (allow \$4.50). All sets pre-sold checked and covered by our 90 day warranty.



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MONTH AT B.E.S.



TENKO 2XA

The Tenko model 2XA (similar to the Swan FM2XA) is a 10 watt, 12 channel 2m FM transceiver. Using dual gate MOS FETs in the front end it exhibits excellent cross modulation and overload characteristics. The 2XA comes complete with mobile mount, microphone, and DC power cable.

TECHNICAL DATA:

Transmitter: Power output: 10 watts. Deviation: ± 7 kHz. Spurious Response: -60 dB.

Receiver: Sensitivity: $0.5 \mu\text{V}$ for 20 dB quieting. Selectivity: 6 dB down at ± 12.5 kHz; 50 dB down at ± 25 kHz. Squelch sensitivity: Less than $0.3 \mu\text{V}$. Circuitry: Double conversion with IFs of 10.7 MHz and 455 kHz.

INTRODUCTORY PRICE — \$169, includes 3 JA channels and 2 Aust. channels. Extra standard channels, **\$8.00.**

YAESU FT-620B

New model 6m SSB/AM/CW transceiver, illus. at right. **PRICE — including AM filter and crystal calibrator — \$468.**

YAESU FT-220, 2m SSB/FM/CW transceiver, latest model with crystals and mods for FM repeater operation. Similar appearance to FT-620B. Limited quantity only — **\$475.**

YAESU FT-224, 24 channel 2m FM transceiver — **\$259** with 6 Australian channels installed.

YAESU FT-2 AUTO, 8 channel, auto-scan 2m FM transceiver.

YAESU S-200R, 200 channel, frequency synthesised 2m FM transceiver.

NEW FROM STANDARD CO.:

SR-C146A, 2m FM 2W output, 5 channel Walkie-Talkie. This superior quality transceiver comes complete with a leather carrying case, and auxiliary jacks are provided for external microphone, earphone, antenna and battery charger. Whip antenna telescopes down level with top of set.

TECHNICAL DATA:

TRANSMITTER:

RF output	2 watts	Sensitivity	0.4 μV or less
Modulation	5.5kHz (adjustable)	Selectivity	60 dB down on adjacent channels
Spurious & Harmonics	More than 10 dB below carrier	Circuitry	Double conversion
FM noise	At least 45 dB		

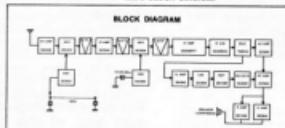
RECEIVER:

PRICE — \$158, includes carrying case and 4 Channels (2 U.S. and 2 Aust.). Optional accessories extra, e.g. hand mic., stubby ant., charger, mobile mount adaptor, 230V AC home use adaptor.

RECEIVER SENSATION

MR-2 MINI-RECEIVER for pocket use. A little larger than a cigarette packet, the MR-2 is a full double conversion crystal controlled VHF miniature receiver of really high quality, 12 channel capability. Delivery expected June/July with anticipated price under **\$100**, including self-contained Ni-Cad batteries, earphone, wire antenna, and battery charger. Crystals will be stocked for the 2m band.

MR-2 BLOCK DIAGRAM



All prices Inc. S.T. Freight etc. extra. And . . . don't forget, your purchase from B.E.S. includes pre-sales checking of sets plus our 90 day warranty.

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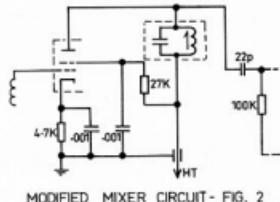
modifications to the VK3ABP 2 and 6 metre converters

It was with some delight that one of the technical editors, VK3ABP, received this article for perusal. He also has found an IF tuned circuit desirable in one case when an IF above 30 MHz was used. The article explains some of the factors involved in choice of IF, and how such a tuned circuit may be added where necessary.

The VK3ABP VHF converters need no introduction to anyone active on 2 or 6 metres over the last decade. There would probably be very few shack that have not had at least one of these at some stage. I have lost count of the number that I have built and every one was a good performer. In the early days of Ch. 0 the 6m version seemed about the only converter capable of solving the cross mod. problem. Some idea of the success I have had can be seen from the DX of the last season: 2m, VK1-7 Inclusive, 6m, VK1-0 & ZL1-4 Inclusive, in addition to five JA call areas in other years. All signals received on the standard 2 or 6m version.

The trend today is to use 28 MHz as the tunable IF for VHF converters for a variety of reasons, not the least being the 2 MHz or more available compared with other bands. Unfortunately few receivers give their best performance at 28 MHz, especially when compared to say 80m where gain is usually more than adequate. My 6m converter, while a good performer and relatively free of cross mod, except when beaming directly at Ch 0, seemed to lack the sensitivity of the classic "R, TV & H" type converter which used a 6BQ7 front end. Unfortunately the latter was totally unsuited for operation in Ch 0 areas and had to be abandoned despite its previous excellent performance. My impression has always been that the 6m VK3ABP converter obtains freedom from cross modulation at the expense of gain.

The mixer stage output is untuned and the signal is coupled to the IF by an untuned cathode follower. Therefore the first tuned circuit at the IF is the front end tuning of the receiver. I set out to see where some additional gain could be



MODIFIED MIXER CIRCUIT - FIG. 2

obtained without drastic modification to the converter, especially as the tunable IFs at 28 MHz were not as hot as they might be. The reason for using untuned circuits in the mixer and cathode follower areas appears to have been to make things as flexible as possible and allow IFs from BC upwards to be used.

The original mixer circuit is shown in Fig. 1 and the modifications in Fig. 2.

The 10 K resistor in the anode of the mixer section of the 6BL8 is replaced by a tuned circuit at the IF and tests on DX signals on both 2 & 6m have shown a very worthwhile increase in gain without increasing cross mod. The 6m version was simply peaked for maximum at 28 MHz but due to the gain of the 6ES8 cascade RF stage ahead of the mixer in the 2m version it was found necessary to back off the tuning slightly as the noise was too great and produced a standing S meter reading of about S6. By backing off the tuning until the S meter just reaches zero with no signal the gain is about right and should give somewhere in the vicinity

Geoff Wilson, VK3AMK
7 Norman Ave., Frankston, Vic. 3199

of 2 to 3 S points improvement over a converter without this modification. The 6m converter, due to the lower gain of the RF amp, does not give any noticeable increase in noise. During a recent 2m opening to VK5, I monitored the VK5VF beacon for long periods and found that the signal was in the noise and not moving the S meter at all without the addition of the tuned IF circuit but as soon as this was added the signal rose to about S3 and was quite clear. Also car ignition was much more pronounced and there was a noticeable rise in background electrical noise, inaudible previously. I made my tuned circuits up on Neosold formers and fitted cans, then soldered the tuned circuits in, directly replacing the 10 K resistor (15 K in the case of the 2m converter). Coil dimensions will vary of course depending upon the IF used. Should any instability result from the addition of the tuned circuits try a damping resistor across the coil; values probably between 2.2 K and 4.7 K would be suitable.

Try This

with Ron Cook VK3AFW
and Bill Rice VK3ABP

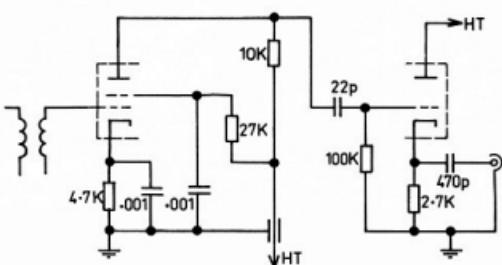
MODIFICATIONS TO MINISCOPE SOLDERING IRON

After a period of use, the barrel (although made of stainless steel) oxidises in the thread where the bit screws in, leading to overheating due to poor contact and accelerating the oxidation process. Cleaning the thread with a 5/32" Whitworth tap helps for a short period, but erosion of the barrel thread leads to a poorly fitting bit. To overcome this, a slot was cut in the barrel with a hacksaw blade with the "set" ground off each side (so the cut will not be excessively wide). Cut through the thread on one side, being careful not to damage the thread on the opposite side.



the cut extending a little beyond the tapered part of the barrel. With a pair of fairly heavy pliers, carefully reduce the size of the thread portion by pinching together the cut. Try and maintain the threaded portion circular. Run a 5/32" Whitworth tap through to thoroughly clean the threads. Pinch the end in until a new bit is a firm fit, requiring pliers to screw it in. It pays to clean the thread with a tap each time a new bit is fitted and also check that the new bit is a firm fit in the threads.

C. P. Daw, VK2AGJ



6BL8 MIXER - CATHODE FOLLOWER - FIG. 1

VHF UHF

an expanding world

with Eric Jamieson VK5LP

Forreston, S.A., 5233

Times: GMT

AMATEUR BAND BEACONS

VK0	VKDAMA, Mawson	53.100
	VK0GHR, Casey	53.200
VK1	VK1RTA, Canberra	144.475
VK2	VK2WI, Sydney	52.450
	VK2WI, Sydney	144.010
VK3	VK3RTG, Vermont	144.700
VK4	VK4RTL, Townsville	52.600
	VK4WI/1, Mt. Moffatt	144.400
VK5	VK5VF, Mt. Lofty	53.000
	VK5VF, Mt. Lofty	144.800
VK6	VK6RTV, Perth	52.300
	VK6RTU, Kalgoorlie	52.350
	VK6RTW, Albany	52.950
	VK6RTW, Albany	144.500
	VK6RTX, Perth	52.950
VK7	VK7RTX, Devonport	144.400
P29	P29GA, Lae, Niugini	52.150
3D	3D3AA, Suva, Fiji	52.500
ZL1	ZL1VHF, Auckland	145.100
	ZL1VHF, Waikato	145.150
ZL2	ZL2VHF, Wellington	145.200
	ZL2VHF, Palmerston North	145.250
ZL3	ZL3VHF, Christchurch	145.300
ZL4	ZL4VHF, Dunedin	145.400

The only item of likely interest in regard to beacons at present is the information from Bill VK2HZ to the effect that from his elevated site at Springwood in the Blue Mountains of NSW he monitored the Fiji beacon 3D3AA on 6/1/75 from 0200Z to 0600Z, being audible for the full four hours, very slow fade — not typical Es fading. Signal S6 at maximum down to S2 at times. Again on 7/1/75 the beacon was heard from 0800Z to 0900Z with signals peaking S3 about 0845Z, otherwise just being audible for most of the period.

If the beacon can be encouraged to keep on air it may well be that towards the end of the year in particular, contacts could be made into which will be a new country for most 6 metre operators.

52 MHz FM SURVEY

Well, some people at least, read the VHF notes. Two letters have arrived taking to task George VK3AVY for apparent errors in relation to VK2 FM activity. The first is from Bill VK2HZ who mentions he has worked 239 different VK2 stations on 52 MHz during the past eight years. 95 per cent of them would have been on the primary frequencies of 52.525 FM and 53.866 AM, the remainder on AM or SSB. To clarify the position a quote from Bill's letter: "George, VK3AVY, has his lines crossed when he lists VK2 52 MHz net frequencies in '52 MHz FM Survey'." (AR March 75, P17).

"The primary frequencies are 52.525 FM and 53.866 AM and have been for the last ten years at least (longer for AM frequency). The VK2AWI broadcast appears on these two frequencies, also on 53.100 SSB."

"Some six or seven years ago 52.866 was generally adopted as a secondary FM frequency. The use of an additional frequency was necessary due to the activity on 52.525 and to provide a spot where stations could enjoy a quiet yarn, without too much competition."

"On the AM side 53.866 was used extensively before Low Band FM Car-phones became readily available, when many stations moved to 52.525. The Illawarra (Wollongong) WIA Branch used 53.862 especially for fox-hunts and the like. In recent years the use of AM nets has fallen with FM operating taking over."

"It would be fair to say that 52.525 FM operation is on the wane, except of course during the Xmas season when the 'wood-work' opens up!"

"The reason for this reduction in activity could possibly be blamed on the ready availability of 144/148 MHz 'Mini-Black-Boxes' with the added interest of repeaters and multi-channels. Just another phase in the ever-changing pattern of

VHF activity".

Thank you Bill for setting the facts straight, and George will now be able to bring his book up to date too.

While on the subject of net frequencies, repeaters etc, is it to be a fact that if one should travel from VK5 through VK3, VK2 to VK4, and north to Townsville, one will need about 7 different repeater channels to be able to have a reasonable coverage of the country? And is it also true that in addition to the main four repeater channels, 1 to 4, on 2 metres FM, VK2 look like using Channels 5, 6 and 7? I guess it would be reasonable to say most operators would consider fitting at least the four primary channels 1 to 4, plus Ch. 4B (B) and Ch. 50, the national simplex frequency, but to be asked to add three more repeater channels seems beyond all reason.

If thoughts are proceeding along these lines, might I suggest some thought be given to interstate operators as well. Nice to have your own special repeater on say 52.866 as long as it is OK to openly talk amongst yourselves on the main SSB! Now, someone tear me apart and tell me how wrong my grapevine is, because I will be glad to be told I am wrong — I will be through the eastern States before too long and I am certainly going to stock up on Ch. 5, 6 and 7.

And still further to the FM business, Jeff VK2VYY writes to confirm what Bill VK2HZ has already noted above, but adds there is little or no WICEN activity in Sydney now or for some years. However, moves are under way to revive WICEN in VK2. Thanks Jeff for writing too.

The Bundaberg Amateur Radio Club advises that as from 2/4/75 channel 50 will be the Club's 2 metre calling and net frequency, so you guys travelling north through Queensland might bear this in mind. Note from Club Secretary D. W. Albrecht, via Editor "AR".

MOONBOUNCE

Not much to hand this time, but the 432 MHz equipment of the Illawarra Branch which was damaged by lightning last October has been largely repaired. It is noted the FMT4575 are now priced at \$44 each duty free, after a price drop! However, such transistors provide a NF of 1.5 dB which is pretty good for 432 MHz. A new PA stage for the transmitter is being constructed to allow for the production of 700 watts of RF output from 1000 watts input, which represents a 3 dB increase in transmit power.

The high ERP signals from WAGLET on 22/27/75 were also received by VK2AMW, the Groups EME station, from 0800Z to 0845Z up to 8 dB above the noise, but repeated calls from VK2AMW were not acknowledged.

Incidentally, the Illawarra Branch of the WIA have adopted a name for their magazine, "The Propagator". So now you will know what I am referring to in the future!

SPECIAL HF BEACON

Although HF news may be rather foreign to these columns, nevertheless, this information may still be of some use to VHF operators. The NZART Upper Hutt Branch are now operating a beacon on 28.170 MHz, and it is part of the RSGB World Wide 10 metre beacon network. Details from "Break In" March 1975: Call signs: ZL2MHP; Freq: 28.170 MHz; Modulation: F1, call sign about every 10 seconds; Antenna: Vertical half-wave omnidirectional; Location: Mount Climpie, Upper Hutt, near Wellington, 890 m ASL. Power input 90 watts, continuous operation.

Because the factors governing communications on 28 MHz are linked to a certain degree with those operating on 52 MHz, this 28 MHz beacon could be useful with its 100% modulation. The fact that it can be heard at all in VK indicates a rise in the MUF, and good strong signals could herald a band opening around 52 MHz and above. With so many transceivers around these days, it could well be that some good could come from monitoring the frequency on which the beacon operates during those odd moments when you are in the shack doing something else but nattering on the air. And it might be a good idea to tune down to this beacon during the time of any 52 MHz openings and see how strong it may be; from this you could probably work out a pattern related to signal strength which will indicate just how high the MUF might be. Think about it!

As you have probably observed from the lack of specific information little has happened on the

6 and 2 metre scene this month — as seen from this area anyway. However, this could mean some of the usual operations are improving equipment while those habitually on the FM nets are constructing tunable equipment — I wonder!

Thought for the month: "A man must keep a little back shop where he can be himself without reserve. In solitude alone can he know the true freedom."

The Voice in the Hills

Contests

with Jim Payne, VK3AZT

Federal Contest Manager,
Box 67, East Melbourne, Vic., 3002

ROSS HULL VHF-UHF CONTEST

Although a few days of grace were allowed for late entries some did not arrive until later and consequently could not be included in the results published in the April issue of AR.

Section (A) —

VK2SHO 2555 869

Section (B)

VK3BMD 1446 666

VK3AUJ 1255 533

VK3JJE 694

The PD Box 67 is normally cleared once each week and twice weekly when competition logs are coming in. It is not possible for me to allow more than the few days grace unless the subsequent publication of results is to be delayed for a month. Sorry fellas.

REMEMBRANCE DAY CONTEST

When you read this the popular Friendly Contest will be only four months away. So mark the calendar for August 15/16 and tee up some pencils. Maybe we will have some variations to both the rules and the scoring table as recommendations have been made to the Federal Council and some decisions should be made at the forthcoming convention to be held in Melbourne during the weekend of April 25/26/27. Unfortunately there has been very little response to my suggestion in the Feb issue of AR to reduce the amount of detail required in logs.

However, one VK5 has a gem of an XYL who wrote "Having written out very lengthy log sheets from this call sign for 21 years, I can see no great advantage in changing the format of the RD log sheets, as suggested. Surely it could be no easier to copy page for page from the official station log". Well, maybe us males may be so fortunate and I ponder that the station will last well even while disposing of last years RD log books piled of footscap almost 63 centimetres high, in the incinerator. There is so much detail on those sheets that the FCC does not require. Perhaps with a few short cuts we can get at least 1000 entries this time.

CONTEST CHAMPION TROPHY

This matter is being considered by the Executive but it is most unlikely that any announcement could be made until after the Convention.

CONTEST CALENDAR

May 10 World Telecomm Phone

11 Worked all Britain LF phone

10/11 USSR M-CQ DX

17 World Telecomm CW

17/19 Michigan QSO party (CW & Phone)

June 1 Worked all Britain LF CW

21 All Asian DX Phone

28/29 ARRL Field Day

WORLD TELECOMM CONTEST

Phone 0000-2400 GMT May 10

CW 0000-2400 GMT May 17

Limited to single operator stations 10 through 160 metres. Use a separate log for phone and CW. Exchange RST plus your ITU zone.

Scoring 10/15/20 40 80/160

Same country 0 0 0

Other country same zone 1 1 2

same continent 2 3 4

Other continents 3 5 6

Final score: Total QSO points multiplied by different ITU zones worked. The same station may be worked on each band for QSO points but Zone is counted once only. Mail logs before June 30th to

Ministerio das Comunicaciones, DENTAL, 70,000, Brasilia, DF, Brazil.

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2100 GMT on dates listed in calendar. The LF bands are 160, 80 & 40. Exchange RS(T) and QSO number. UK stations will also give their county and WAB area number. Scoring: Each contact 5 points. The same station may be worked on different bands for QSO points but not multiplier. This is determined by number of different UK areas worked. Logs go to R. L. Senter, G4BFY, 10 Toll Bar Av, Bottesford, Nottingham, NG13, England.

16th ALL ASIAN DX CONTEST

Phone 1000 GMT June 21 to 1800 GMT June 22 CW 1000 GMT Aug 23 to 1800 GMT Aug 24 A brochure has been received setting out full details of these contests. The rules are detailed and a summary sheet is provided. You can also be named in the results for a detective log or a false statement in the report so please send a SASE to the FCM for complete details of this competition.

15th ALL ASIAN DX PHONE RESULTS

VK5NO	M	581	71	41,251
VK7DK	M	589	50	32,684
VK4VU	M	237	23	5,451
VK5SM	M	83	37	3,441
*VK2XT	21	436	27	11,772
VK5WIT	14	50	6	300
VK6DG	14	24	12	288

*Section winners.

1975 JOHN MOYLE MEMORIAL NATIONAL FIELD DAY RESULTS

24 HOUR DIVISION

Section (a) Tx Phone

	Section (h) Receiving	L3-0042	370
VK4AL	2022		
3B8B	1880		
1JR	1859		
4FD	1520		
3BCH	302		

Section (b) Tx CW

VK3TX	487	VK3YQ	745
SDL	150	3EF	473
		7BM	435
		3ADW	414
		TAX	110

Section (c) Tx Open

VK2CAX	2183	VK2YB	254
3AUQ	1264	2JM	182

Section (d) Tx Multiple Phone

VK5AWI	4079 4 ops	VK4AAR	624
8AS	3592 6 ops	3HE	410
5LW	2943 6 ops		
3ANR	2296 5 ops		
3RV	715 3 ops		

Section (e) Tx Multiple Open

P2P PNG	6599 6 ops	VK5SSR	1063 7 ops
VK3ATM	6139 16 ops	5KR	1007 8 ops
3APC	5726 16 ops	4WIM	670 2 ops
3AWS	4944 11 ops	4AXA	669 2 ops
1ACA	4752 8 ops		
2WG	3738 12 ops		
1WI	3652 7 ops		
3XK	2892 4 ops		

Section (f) Tx VHF

VK3AVJ	1085	VK2ZHT	800
2YCK	1031	22CX	214
3AYE	554	42LT	60
2ZCT	338		
4ZAF	228		
2YDV	192		
4ZGR	138		

Section (g) Home Stations

VK5LM	545	VK7AL	525
3BCH	430	4LP	520
3KK	410	3XB	360
3XG	270	3RN	265
		2VM	70
		3ALD	45
		5LP	45

Section (h) Receiving

R. J. Everett, Tas.	410
---------------------	-----

Check logs: VK7RY, 4HS

NOTE—Checking of logs not completed. Consequently scores and placings are subject to confirmation.

QSOs needed on each band to earn the bonus/multiplier for that band.

No bonus for 80, 40 or 20 Mx but for the amateur with limited facilities give an award for single band operation only.

SCORES:

This is always a point of discussion. How can it be made to balance between States of such widely varying amateur populations.

I would suggest the following points be considered as a basis for determining the winning State:

- Score entries only — not non-starters.
- Total scores of top ten logs.
- A multiplier for number of bands used.
- Give a score for % increase in participation over, say the last three contests.
- Give extra score for number of entries with 100 or more points.

Balancing all that won't be easy but I'm sure one of our fraternity has access to a computer which could handle the problem.

To summarise, here are my suggestions for the contest:

- Bonus or multiplier for 10 or more contacts on each of 160 Mx, 15, 10, 6, 2 Mx.
- Double points for VHF intra-state from midnight to 2 am.
- Certificate for highest log entered as single band only.
- Allow points for different modes with same station on same band.
- Consider use of repeaters (I don't know if this would be good or bad).
- Re-vamp Winning State formula.
- What about a bonus for new modes such as SSTV?

No doubt there are more (and better) ideas floating around, so let's see what everyone thinks via the pages of this Magazine.

73's

Mike VK3WW

The Editor,

Dear Sir,

My wife, Betty, and I arrived in Australia, from England, at the end of November 1974 to visit

6 HOUR DIVISION

Section (a) Tx Phone

VK3YQ	745
3EF	473
7BM	435
3ADW	414
TAX	110

Section (b) Tx CW

VK2YB	254
2JM	182

Section (c) Tx Open

VK4AAR	624
3HE	410

Section (d) Tx Multiple Phone

VK5SSR	1063 7 ops
5KR	1007 8 ops
4WIM	670 2 ops
4AXA	669 2 ops

Section (e) Tx VHF

VK2ZHT	800
22CX	214
42LT	60

Section (f) Home Stations

VK7AL	525
4LP	520
3XB	360
3RN	265
2VM	70
3ALD	45
5LP	45

Section (g) Receiving

R. J. Everett, Tas.	410
---------------------	-----

Check logs: VK7RY, 4HS

our son and his family in Sydney.

Prior to our departure from England I had contacted many of my Australian radio amateur friends and received many invitations to visit them. We are due to leave Australia on the 15th April '75 for home, via Singapore, and we wish to express our sincere appreciation and thanks to the many amateur friends who offered us all the friendliness and hospitality that we enjoyed.

I was privileged to be invited to the recent "Old Timers" meeting in Melbourne, and met many of the "Youngsters" who started off with smoke signals!

We were invited to the homes of VK4KS, VK3AAO, VK3BM and VK3GN where we stayed and were treated like VIPs. We met so many "VK" amateurs and received the same wonderful hospitality that it seems unfair to mention any one in particular!

I was impressed by the enthusiasm and knowledge of the Australian amateurs and the quality of performance of the home-brew equipment.

My wife and I agree that you have a wonderful country and such grand people — we thank all for the wonderful time spent in Australia.

73. Yours sincerely,
Leslie and Betty Luscombe
GBNY, VK2BNY, FONY

The Editor,

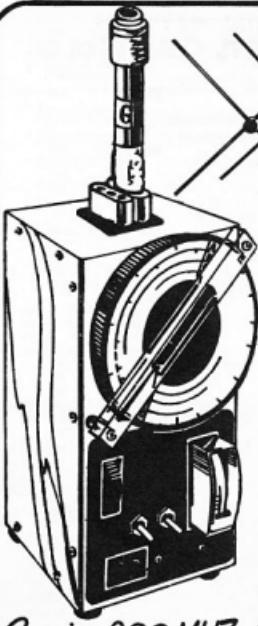
Dear Sir,

The aim of the contest is to foster an interest in the Townsville Pacific Festival, and to increase interest and activity on all amateur Bands by Australian and New Zealand Amateurs.

It will be noted that a further effort is made in this contest to increase popularity of the CW Mode of communication. Hence all CW contacts count for double score.

This is the second year that the Townsville Pacific Festival contest has been run. Last year 1974 VK4IZ scored the highest points and received the trophy.

This year we wish to include the ZL and P29 to get some more interest in the contest, if either win the contest the trophy will remain



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0-20W, 0-200W, 0-2kW at 7/14/21 MHz

0-2W, 0-20W, 0-200W, 0-2kW at 28 MHz

0-2W, 0-20W, 0-200W at 50/144 MHz

$\pm 15\%$ at SWR 1.1-1

2 kW at SWR 1.1-1

750W at SWR 1.5-1

200W at SWR 3.0-1

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0-20W, 0-200W, 0-2kW at 7/14/21 MHz

0-2W, 0-20W, 0-200W, 0-2kW at 28 MHz

0-2W, 0-20W, 0-200W at 50/144 MHz

$\pm 15\%$ at SWR 1.1-1

2 kW at SWR 1.1-1

750W at SWR 1.5-1

200W at SWR 3.0-1

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I trust that all will enjoy the contest and make it as interesting as last year.

73s Good Luck, Hugh C. Barlow VK4AM
Queensland Contest Manager

1. Time of Contest:

The Contest will be of 12 hours duration — 0200 GMT to 1400 GMT Saturday 15th June, 1975.

2. Sections:

- (a) Transmitting all bands phone only
- (b) Transmitting all bands CW only.
- (c) Transmitting all bands. Open.
- (d) Receiving all bands. Open.

3. Contacts:

- (a) CW contacts count as double score (CW to CW).
- (b) One (!) contact per band per mode only.
- (c) No cross band contacts.

4. Awards:

- (a) A certificate will be awarded to the highest score in each section for each call area. Per cent.
- (b) The entrant with the highest score will be awarded a certificate.

- (c) Trophy entrant to entrant with highest overall score within Australia. Trophy to be held over until next contest.

5. Scoring:

Bonus — (a) For contact with VK4WIT — 15 points to be added to score on table below.

N.B. — VK4WIT and other Townsville stations are the VK4 stations that other VK4 stations can contact. Scoring for VK4WIT and other Townsville stations will be the same as for other VK4 stations. However VK4WIT and Townsville stations receive no bonus points.

Scoring for VHF & UHF:

Same as for HF except that on bands above 50 MHz — (i.e. interstate contacts are permitted) — for this purpose, a contact on frequencies above 50 MHz within an entrant's own call area will score 1 contact point. With the exception of VK4 where the Bonus rule applies for contact with VK4WIT or other Townsville stations.

Contacts on 160 metres:

Some scoring as in table with additional 5 bonus points per contact.

Contact points as per table below:

P29

VK1 VK2 VK3 VK4 VK5 VK6 VK7 VK8 VK9 VK0 ZL

VK0 6 6 6 6 6 6 6 6 6 — 3

VK1 — 1 2 2 3 6 2 4 5 6 3

VK2 1 — 2 1 2 6 3 4 5 6 3

VK3 1 2 — 3 2 4 1 6 5 6 3

VK4 2 1 3 — 4 6 5 2 1 6 3

VK5 3 2 2 4 — 1 5 1 6 6 3

VK6 6 6 4 6 1 — 4 1 2 6 3

VK7 2 3 1 5 5 4 — 6 5 6 3

VK8 4 4 6 2 6 1 6 — 2 6 3

P29

VK9 5 5 5 1 1 2 5 2 — 6 3

ZL 3 3 3 3 3 3 3 3 3 3 —

6. Send logs to:
Townsville Pacific Festival Contest,
P.O. Box 964,
Townsville, Q. 4810

7. Closing Date of Entries:

15th July, 1975.

P.S.—Townsville Stations identify by:
(Phone)—VK4WIT Townsville
(CW)—VK4WIT/TVL.

The Editor,
Dear Sir,

I think it is correct that technical errors in articles should be pointed out. I would therefore like to point out an apparent error in the diagram on Page 11 of March Amateur Radio, 1975.

The author of the article describes how to draw an ellipse which represents the earth's orbit around the sun. The orbit shown contains a major error.

The earth's orbit is not as elliptical as that shown in the diagram. This is quite excusable since an exaggerated diagram can often be used to illustrate a point. In the diagram the major and minor axes are shown as being in line with the summer and winter solstice and the equinox. This is not correct but the difference is only 12 days and this is also a minor point.

The diagram shows the sun as being at the centre of the orbit and herein is the error. The sun is actually at one of the focal points of the ellipse. In the case of this ellipse the focal points are the points where the pins were used to do the drawing. The sun or focal point of the orbit always lies on the major axis and has its closest point along the major axis. The diagram shows the closest points lying along the minor axes.

The following are a few facts about the earth's orbit. The ratio of the distance from the centre of an orbit to the sun compared with half the major axis is known as the eccentricity of the orbit. In the case of the earth, the eccentricity is about 1 in 60 (an almost circular orbit). The earth is closest to the sun on the 2nd of January and furthest from the sun on the 6th of July. The difference between the closest distance to the furthest distance is about 3 million miles.

J. A. Adcock,
Member of the Astronomical Society
of Victoria.

DX QSL Notes

The following list of DX stations and OSL information has been supplied by Ken VK3AH.

3C1AGD — SM3CKS
FB8YC, FB8YD — F9MD or FBKAW

8Q6AC, 8Q6AD — c/- Tokyo Village, Marleigh Rep. of Maldives Islands

SW0WV — P.O. U.S. Embassy KAV A.P.O. New York, NY 09258

7P8AQ — P.O. Box 1266 Maseru, Lesotho
7P8AT — P.O. Box 1098 Maseru, Lesotho
Z56BHW/3D6 — K. Muller, P.O. 283 Mbabane, Swaziland

5U7HL — Rev. T. Schultz, BP 8062, Tokoin Lome, Togo

VU2AQ — WA1FEO
VP2KQ — Box 364, St. Kitts, Windward Isles

VP2AB — J. Brown, Box 229, St. Johns, Antigua W. Isles

KV4BW — Box 3680 St. Thomas, American Virgin Isles

KX6LN — Eox 1199 APO San Francisco, CA96555

KX6LP — Box 1604 APO San Francisco, CA96555
VK2BZM/9 Norfolk — VE3GUS (Direct only)

FL8BH — H. Bachett, P.O. Box 10 Ali Sabieh, French Somaliland

VP2EEB — WA1REI, WB4ZNM

PJ8IOX — WB4IDX

SP9PT/VE — SP9RU

ZM7AH and ZM7AJ — W5ZF

HDIQRC — WA8TDY, John Crull, 3528 Craig Drive, Lint, Michigan 48506 (S.A.S.E. & 3 IRCs)

CR7IC — AA Pedro Das, Santos, P.O. Box 135 Porto Amelia, Mozambique

WA6TJV/K5E — M. Hitchcock, Box 1619 Pago Pago, U.S. Samoa

XE2RLP — Box 1147 Mazatlan, Sin, Mexico

3A2CP — Leslie Newport Gwill, Le Bermuda Monaco, M.C. or WA3HUP

7Q7BC — Peter Conway, Box 5595, Limbe, Malawi Central Africa (VQ2BQ & 9J2BC)

CP1DN — Malcolm Chris Jensen, Usaid Bolivia APO NO 09867 Casilla 673 La Paz Bolivia

A35AF — Kazu Inoue Box 19 Vavau, Tonga

C21AZ — Bert Beszeljen, P.O. Republic of Nauru

PY2CPK — Osvaldo Reis de Magalhaes, Rue Marques do Paranagua, 164, 01303 — São Paulo Brazil, Sth. America

TGBAU — F. Humberto, Cordon — Apartado Postal 248 Guatemala, C.A.

A4FQ — P.O. Box 1000 Muscat, Sultanate of Oman

PV2DH — WBHM

8R1AG — WA7TDZ

SWLs

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What do you want to see in

AR?

CAN ANYONE HELP OUT?

QSP

FREQUENCIES

"So long as we depend on the publicly-owned frequencies for amateur radio's very existence, we had better make sure the public knows who we are and what we do". Quote of the month in QST, Oct. '74.

STATISTICS

Radio Communications for Nov. '74 advises that RSGB membership at the end of Sept. totalled 17,250 which included 1,720 overseas members and 1,020 associates in the UK. At the end of Aug. '74 there were 25,333 amateur licences in force in the U.K.

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STOP PRESS — NOVICE LICENCE APPROVED

The P.M.G. announced in a press release dated 16th April 1975 that arrangements have been made for the introduction of Novice amateur radio station licences.

Senator Bishop stated that the Novice Licence is being introduced to enable persons who have not passed the standard amateur examination to engage in radio as a hobby on a restricted basis and gain the experience and knowledge necessary to qualify for a normal licence. This move by the Government had the wholehearted support of the Wireless Institute of Australia.

To become eligible for such a licence, persons will be required to qualify for a Novice Amateur Operator's Certificate of Proficiency.

The Certificate will be issued to any person, regardless of age, who passes a comparatively

simple examination in radio theory and regulations and a written code test at 5 words a minute.

He said that the fee for a Novice amateur station licence had been set at half the normal rate and would be \$6 a year. The fee for the examination will be \$2.

Novice amateur station licences will be permitted to operate within the bands 3.525-3.575 megahertz, 7.010-7.110 megahertz, 21.060-21.450 megahertz, 28.230-28.290 MHz. All transmitters must be crystal controlled. Powers of up to 10 watts for double sideband and 30 watts for single sideband transmission will be authorised.

Persons wishing to obtain more information concerning the new Novice Licence should contact the Regulatory and Licensing Section of the Postmaster-General's Department in the State in which they reside.

RAIC ANTENNA BY VICOM

	Model	Imp	Freq	VSWR	PRICE \$
BALUNS	BL-50A	52	1.8 - 38MHz	1.3:1	14.90
	BL-70A	75	1.8 - 38MHz	1.3:1	14.90
COAX SWITCHES	CS-2A	52	to 300MHz	1.3:1	21.00
	CX-6(A)I	52	to 500MHz	1.3:1	54.00
	CX-6(A)II	75	to 500 MHz	1.3:1	54.00
TRAP DIPOLES	III-N	52	7 to 28MHz	1.2:1	31.00
	AL48DXN	53	3.5 & 7MHz	1.2:1	31.00
	AL24DXN	52	7.8	1.2:1	24.00
A-4VPN	52	3.5MHz	1.2:1	24.00	
	A-BVPN	52	7MHz	1.2:1	26.50
LISTENER	L1	75	3 to 30MHz	—	14.90
BALANCED FEEDER	BTF-1	600	—	—	12.00

ANTENNAE

MARK MOBILE (HELICAL):

HW-80 80M 6ft \$18.
HW-40 40M 6ft \$18.
HW-20 20M 6ft \$16.
Bumper mount \$14, Heavy spring \$11
HY-GAIN

TH3JR 10-15-20 3el yagi \$118
203BA sel 20m beam \$168

VHF ANTENNAE

Scalar Mobile Whips:
M22 2m fibreglass 1/2w \$7.50
M60 6m fibreglass 1/2w \$10.70
M21 2m steel 1/4w \$6.90
LINDENOW 2m 5/8 whip \$21, base \$2.60
RINGO ARX-2 6db 2m vertical \$35
Extension kit to improve

gain of the old AR-2, \$12

ANT. ACCESSORIES

ME-1B SWR PWR METER 3-150 MHz \$22
ME-1A UHF POWER METER \$69
AS-GM guitar damps 2m \$7.50
SH-7E lightning arrester \$14.90
CO-AX 580 45c per m
RB 2m mast amp (144-146 or 146-148) \$32
6m and 2m low noise preamps \$18.75
VICOM 70cm low noise preamp \$22.50
Rotator — CDR ham II 240v \$165

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He-25/u crystal \$19.80
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AGENTS:

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- A.C.T.: Andrew Davis, 32 Kalgurlie Cres, Fisher, 2611 Ph (062) 430031
- QLD.: Ed Electronics, 21 Cheltenham Ave., Miami, 4228 Ph (07) 351796
- W.A.: Axis Electric, 254 High Rd, Riverton, 6155 Ph (092) 574062



QSP

USA AMATEUR RE-STRUCTURING

From an article in Jan '75 QST "as anticipated, FCC says we should have two routes of incentive licensing. One would be the present basic HF ladder of Novice to General to Advanced (and Extra). It is termed 'series "A"' or the 'short wave domain, defined as below 29 MHz'. The second would be an expanded VHF-UHF progression with a new 'Communicator Class' as the entry point to feed technician ranks, and beyond it, an 'Experimenter Class' — a sort of 'super-tech', paralleling the Advanced level. An amateur would thus have to hold two types of license authorisation to operate both below and above 29 MHz. The Extra Class would remain the top objective".

SARL

From the editorial in Radio ZS for Jan '75 it is observed that 1975 is the 50th Anniversary of the South African Radio League. ZS6IY in the editorial says "our hobby cannot be conducted in isolation and thus by its very nature it depends for its fulfilment on the co-operation of others — there is no such thing as a one-way QSO".

TELECOM 75

The Secretary-General of the ITU proposes a World Radio Amateur Convention be held within the framework of Telecom 75 scheduled for Oct. 1975 (4th and 5th) in Geneva as part of the World Telecommunication Forum. Any member likely to be able to join in please write in to the Executive Office in Toorak.

ARE YOU UNFINANCIAL?

If you are your AR will have ceased and missing issues cannot be sent free of charge when you do pay up. If you are financing your AR will still be mailed out and you should still be getting it so long as the address is correct and there are no errors which might have accidentally crept into the system. ■

B.E.S. NEWS

Plenty of rotators, baluns, mobile whips and mounts, VHF beams, co-ax switches, vertical trap antennas, trap dipole kits, SWR meters, FM transceivers, manual and auto keys, digital clocks, and digital clock radios, co-ax cable, low pass filters, 70 ohm twin feeder cable, egg insulators, dummy loads, etc., in stock.

A shipment from KW Decca Electronics U.K. is expected to arrive very soon. This will contain antenna couplers, baluns, dummy loads, low pass filters and multi-band trap dipoles. And, of course, Yaesu equipment for HF and VHF, including the new FT-620B, FT-220, FT-224, etc.

A USEFUL HINT!

When constructing or repairing equipment and you have a screw or nut to place in an awkward-to-reach position, try holding the screw in the end of a length of spaghetti insulation or stuck to the end of a screwdriver with a small piece of wax, and the nut partially screwed onto a piece of resin cored solder of suitable diameter or with 2 or 3 strands of thin solder twisted together.

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We are pleased to announce that the long awaited shipment of Hy-Gain antennae is now to hand. If you have previously ordered and not been notified then your antenna is not in this shipment. A further shipment is due to arrive within a month or so.

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Take the hard work out of Coil Winding, use — "WILLIS" AIR-WOUND INDUCTANCES

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2-08	5/8	8	3	No. 3006 \$1.06
2-16	5/8	16	3	No. 3007 \$1.06
3-08	3/4	8	3	No. 3010 \$1.28
3-16	3/4	16	3	No. 3011 \$1.28
4-08	1	8	3	No. 3014 \$1.42
4-16	1	16	3	No. 3015 \$1.42
5-08	1 1/4	8	4	No. 3018 \$1.58
5-16	1 1/4	16	4	No. 3019 \$1.58
8-10	2	10	4	No. 3907 \$2.29

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Equivalent to B. & W. No. 3907 7 inchl

Willis PI-Coupler Unit — \$18.00

7' length, 2" dia., 10 T.P.I. Price \$3.96

Reference: A.R.R.L. Handbook, 1961

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OK1KYS	84	UQ2GW	1056	W6DGH	8	W9LKI	572	
OK1KDR	80	UK2GKW*	2147	W7IR	18495	W0IUB	5735	
OK1MGW	80	UR2RZEE	416	W9JQA	2256	W0BMM	1760	
OK2BGR	75	UR2RDQ	32	W9QWM	648	W0HW	704	
OK2BBJ	70	UK3AAO	4830	SOUTH AMERICA				
OK2BJ	30	UA3ABD	85	PT2GOK	30	HCIW	1872	
OK1IAR	18	UK3AB*	1734	TY7APS	11	LUBADK	259	
OK3KFO	18	UA3AL	234					
OK2LIO	2728	UK4HAB*	240					
OZ2AMH	217	UB5BLAY	780	KH6IJ	23808	VR1AA	25080	
OZ5ME	154	UB5SOE	320					
PA0OJ	243	UB5VAA	114					
PA0UV	50	UK5WAA*	720					
SP2AVE	392	UK5VAA*	559					
SP5TT	75	UK5QBE*	168	BRS32525	5390	OK1-11861	120	
SO9ABU	16	UK5ICG	145	A8462	1768	OK1-17323	112	
SP9DH	8	UK5QSA*	44	DM2703/A	408	OK1-15689	48	
YU1BCD	468	UA6DL	1131	DM5323/M	360	ONL-383	1572	
YU1NZW	90	UW5CA	8	DM5334/N	208	SP6-1598	1728	
YU2HDN	18	UK6LEZ*	4048	DM6405/N	198	SP9-7361	1485	
UK1NA	18	UK6RAJ*	891	DM2814/M	120	SP6-30003	224	
UC2WP	264	UK6FAA*	24	HAT-008	464	UN1-088218	40	
UK2WF*	1120	Check logs from:		I-20631	5880	UP2-038453	181	
UK2AAA*	441	UP2BL	UK3MAA,	I-21171	1924	UA2-125138	168	
UK2CAQ*	27	UA4PWV	UK4NAB,	I-14376	806	UA3-14212	182	
UP2BAO	50	UA4CAC	UK4WAK,	I-51099	468	UA3-127-1	728	
UK2BAS*	3542	UA4AAA	UK5EA5,	I-51099	434	UA4-13373	728	
UK2PAP*	3404	UD8YAA	UA6APP.	I-55461	324	UB5-08632	666	
UK2BAO*	95			I-54561	15	UB5-0861	650	

ASIA

JA1MAT	1045	JATAPW	3978	LA-M5605	1904	US5-20907*	208
JA1XTE	168	JATKXD	1600	OK1-15835	682	US5-077483	66
JA1KOK	160	JATEWS	168				
JA0BMS/1	140	JABBB	1120				
JA1EM	110	JABOTE	806	JAE-1697/1	9690	JAA-10379	6848
JA1LB	84	JABFBM	68	JA1-15154	7988	JAA-8549	70
JA1LKH	80	JAG9YBA	4850	JA1-18780	4524	JAT-6745	1632
JH1EJA	55	JAGC1H	3235	JA1-1301/1	4351	JAB-3180	363
JH1BLX	40	JAGCWJ	728	JA3-8101	2602	JAO-1320	15562
JAT1EL	12	JAGDUR	480	JA3-6863	238	JAO-1918	3002
JAT1BU	8	JAGENB	133	JA3-8048	224	JAO-2230	225
JAT1BBZ	2	JAGLX	95	JA4-10330	9860	UF6-012-74	56
JAT1ZS	2	JAOEZP	405				
JAT2UP	9612	UG6JJ	4				
JAC2CPD	1580	UL7FM	1580				
JAH2GHA	7170	UL7GBM	8				
JAH2MYA	2346	UH5BO	162				
JH2NDJ	2185	UI8ACI	765				
JAE2EG	1573	UK5HIA*	1822				
JH2WMN	855	UJ5JNS	386				
JH2PQW	351	UJ5JAB	6				
JH2ZFT	256	UJ5WPT	2431				
JAH2XH	256	UJ5CBM	1106				
JH2RDX	210	UJ5WNL	854				
JH2RVF	152	UJ5OCJ	392				
JAH2SS	126	UJ5WBT	357				
JH2RHN	24	UJAOBT	39				
JAH3YBF	12997	UJAYAR	33				
JH3LXN	5568	UJASYM	4				
JAC5CEK/3	2784	UK5QAD*	957				
JA3ARM	588	UK5LAA*	564				
JA3WHX	208	UK5HAC*	444				
JAA4QR/3	108	UA6FGM	16633				
JH3BPN	100	UA6MI	4450				
JAX4XW	8806	UW0IX	3408				
JAB4JJO	6400	UACACV	1428				
JAC4CLL	682	UADQJY	320				
JAH4BMH	300	UADSAU	315				
JAD4DZ	110	UADGACJ	312				
JAY4VL	18	UADLAB*	6993				
JAD4PZ	10	UADFO*	603				
JH6DVA	8586	UK5AAA*	414				
JAD6WPF	6060	UK5FAJ*	check				
JAD6AKW	976	Check Logs:					
JAD6DBB	864	UL7TA					
JAL6LCJ	336	UASMFM					
JAT7MJ	6630						

NORTH AMERICA

VE3BBH	5130	W2HF	check				
VE7FE	1062	W4XKV	4428				
VE7AZG	243	W4WNSF	4424				
HR1AT	2352	W4AAPQ	2037				
PJ2VD	264	K4HW	108				
W1EVT	9471	W5SBX	9820				
W1BWP	1071	K5LGM	8505				
WA1SCX	85	W5OB	2662				
W2GXO	9828	WA8EPQ	18490				
W2LWI	6330	W6KYA	1368				

* denotes Multi Op. Station

Commercials in the 7 MHz band. The suggested remedy — more activity boosted by contests, scrambles, certificates etc.

A large part of the magazine in those days was taken up with Divisional Notes. Actually four and a half pages of fine print for May. We all scanned the columns to see if we rated a mention. ■

Commercial Kinks

with Ron Fisher VK3OM
3 Fairview Ave., Glen Waverley, 3150

ALIGNMENT PROBLEMS WITH YAESU TRANSCEIVERS

A letter from Tom House VK2BHT on an alignment problem with his FT101B brought to mind a trouble that might be familiar to many FT200 owners. However, I will let Tom tell his story.

"There appears to be a rather serious design problem in the FT101B which owners should be warned about.

The initial symptom in my own unit was intolerably inaccurate preselector control tracking on 80 metres to the drive and receive stages. After two replacements of the same component, much mind-bashing, circuit checking and discussions with other amateurs, it was concluded that the driver plate inductance T-105, which is switched into circuit on 40 and 80 metres, cannot stand more than a few seconds of full carrier.

T-105's coil former is composed of plastic and under a condition of maximum steadydriver output, quickly softens and becomes distorted, finally jamming the tuning slug and making realignment impossible.

T-103, the 10-15-20 metre coil, does not seem to be affected in the same way. It is suggested that on 40 and 80 metres, when aligning or tuning up the unit, or adjusting an ATU, the carrier control should be used to hold the carrier level at all times to less than 200 mA. This will prevent overheating of T-105. It is also quite possible that the earlier 101s have the same defect".

Tom was aided in his efforts by VK2BF and VK2AFG.

I have had similar trouble with the plastic coil formers in the FT200 although I am sure for a different reason. After a period of time the slugs in the receiver antenna input and transmitter driver sections freeze up. If too much force is applied, the former will break off before the slug will move. Perhaps some of our readers have had the same trouble and found a solution to it. Up to date the only cure I have come up with is to replace the coil. Let me have your ideas.

Commercial Interest
It would be interesting to know just how much amateur gear is sold on the second hand market in Australia. What proportion of it is advertised in the Ham-ads of this magazine? Answers to these questions are just not available. However we can be sure that a very large quantity of equipment has been sold and that even more will be coming onto the market in the future. Just how do amateurs determine a price for a given piece of second hand gear?

I hope to publish some findings in a couple of months. ■

20 Years Ago

with Ron Fisher VK3OM

MAY 1955

May 1955 was a time for looking ahead. The new Federal President, Bill Mitchell, wrote about the forthcoming aims of the Federal Executive, their problems and hopes. Among the most important were a national plan for emergency network operation and the importance of having a representative at the next International Convention. A drive to increase membership was also high on the list.

May was a lean month for technical articles, the only one being a reprint from QST. A Discussion of Receiver Performance. Some new power and voltage standards of receiver design, AVC, peak and strong signal reception, and cross modulation were discussed using the Collins 75A receiver as an example of current thinking. Much of the article was based on the problems of SSB reception.

Everyone was interested in a Convention. At least this was the impression one gets from reading an old copy of Amateur Radio. A full page was devoted to who was there, who won what, and what was served for supper at the Eleventh Annual Urunga Convention.

The DX activities page looked at a problem, somewhat new at that time, but still with us.

Hamads

- Eight lines free to all W.I.A. members.
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- Copy should be in block letters or typescript, signed and forwarded to The Editor, P.O. Box 150, Toowong, Qld., 4034.
- Exclusive commercial advertising.
- Closing date for Hamads is the 2nd day of the month preceding publication.
- QTH means the advertiser's name and address are correct in the current Australian Callbook.

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Transceivers 3.5 to 30 MHz bands. Only used few hours. Complete with AC PS & Manuals in English. ICOM IC-7100, solid state except transmit mixer & finale, \$200 & \$250. Also TRIO TS500 including extra VFO. \$300 O.N.O. Syd Clark VK3ASC, QTH or Telephone (03) 45-3002.

Hamlicrafters SX 117 Receiver — HT 37 Transmitter. 80-10-10, VOX, SSB — CW — AM. Really good condition, \$300 O.N.O. VK4FT, M. Miller, 95 Finucane Rd., Capalaba, Brisbane, Qld. 4157.

Yaeus FT101B. Little used, unmarked, as brand new with matching Yaeus external speaker and accessories. \$475. J. D. Moyle, VK4ZT, Yarrawa, 4694, Qld.

Amateur Gear including serviceable BC348, home built bandswitched linear 6146s, power supplies, SSB exciter, \$100 the lot to clear. VK3AE, QTHR. Ph. (03) 60-4711 ext. 283 bus.; (03) 211-7965 A.H.

Digital Frequency Counter with pre-scaler to 200 MHz, 6 digit LED display, excellent cond. \$120. VK3UJV. Ph.: (03) 90-6242 (evenings only).

KEN KP202 Hand held 2 Mz FM Transceiver, modified to include earphone socket. Includes Ch 40, 50 & RT, R4 also helical antenna, 10 nicks & charger — only 4 months old, as new condition. The lot for \$180.00. B. Bethols VK3UJV, 3 Connemara Ave., Ascotdale 3195. Ph. (03) 90-6242 (evenings only).

50 foot Telescopic Tower, attached to 15 sq. 4 bedr. B/V house. Ideally situated on hill, excellent take off in all directions with nice outlook. Large brick garage and shack, easy to maintain QTH for XYL with considerate neighbours. Contact VK3ANI (soon to be VK6) in Upper Ferntree Gully on (03) 758-5791 for this bargain at \$34,000.

TCA 1877 single channel, very clean condition, circuit and mobile mount, \$65 O.N.O. VK3BAX, QTHR. Ph. (052) 97 401 evenings.

Yaeus FTDX 560, \$300. Tower 30 ft., \$75; Mosley Beam TA33 Jr. \$75; TCA 1875 FM 2m \$75; Realistic DI 150B, \$125. G. Snell, 305 High St., Chatswood 2067.

MRSA, 6 channel, crystals for B and 1 CW whip mounted, \$100. Very good condition, very clean. \$65. Bendix BC433 LF RCV with 240 V supply, good cond., \$20. 522 Tx and RCV, good cond., \$25. AR88 Tuning Unit only \$10. Peter Caswell VK3ZKO, 10 Altkens St., Cilento Hill, 3668. Ph. (03) 489-1385.

Swan 350C with crystal mike and SWR meter and 240 V PSU, \$300. Account Late VK2BSR, contact Mrs. Ringrose, QTHR or Ph. Forster 306.

Drake R4C Rx with noise blanker plus xtals for 160, 31 and 19 metres, twelve hours use only. \$625. VK3AIF, 8 Abbassia St. N. Balwyn, 3104. Ph. (03) 857-5401.

FTY 3570 with FV401 external FVO, \$450. VK3AIF, 8 Abbassia St. N. Balwyn, 3104. Ph. (03) 875-5401.

Yaeus FT/FP 200, cond. as new, at S.H. price, unmodified, with manual, \$375 O.N.O. VK3EM, QTHR. Ph. (03) 58-7745.

Byer R-33 disc recorder, 33, 45, 78, RPM, with sapphire cutters (3) and level meter, with portable case, cast alum. turntable, \$25. Tape Recorder, HB 7½" sec. with 12 reels of misc. tapes, xtal mic. and bulb eraser, spare reels, in port. case and working order, \$15. VKEM, QTHR. Ph. (03) 58-7745.

Carphone AWA MR10c High band, dual channel, DC PS (less vibs), cables and handset cradle, mod. to 2 Mx, no xtals, with speaker, EC, \$20. TV Healing, 17" table model, working order with all channels, useful for shack checks, in cabinet, \$20. Filter xtals in kHz, 444, 446, (2) 447, 448,

450, 452, 454 and 458. For BC 348, 912 and 917, the lot, \$5. VK3EM, QTHR. Ph. (03) 58-7745.

AWA MR10c (\$146 Final) low band, FM, carphone original, as new condition, transistor (2) power supply, control unit and cables, \$42. Pye Reporter on 6m with xtal, Rx tunable, \$20. VK2PT, QTHR. Ph. (048) 43-1300.

FTDX100 Transceiver, 80-10 Mx, 230V DC, good condition, \$275 O.N.O. VK3AFQ, QTHR. Ph. (03) 96-2414 A.H.

WANTED

455 kHz Mechanical Filter with a band pass of either 1000 or 1500 Hz. VK3ACQ, QTHR.

Command Transmitter for wrecking. Exterior conditition or frequency immaterial. VK3AFQ, QTHR. Ph. (03) 96-2414 A.H.

Are there any amateurs interested in exchanging tapes of old time radio, Television programmes? Either Australian, British or American? Also, are there any collectors of cinema material? T. King VK2ATJ, PO Box 45, Kensington, NSW, 2033.

Any back issues of: Electronics Australia, Electronics Today, Amateur Radio or any other magazines for a school library. Contact: G. Scott, VK3ZP ex VK3ZP, QTHR. Ph. (03) 89-4645.

QSL CARDS - VK3AJU

**NOVUS
MATHEMATICIAN 4510**
immediate delivery \$81 p.p.
Student T/F available
NORSTARE ELECTRONICS
Box 582, Shepparton 3630

Silent Keys

Mr. C. C. QUINN VK2AWQ

Mr. R. G. GARRETT VK2BRG

VK3ZO

On 14 March 1975, Noel Strock VK3ZO passed away rather suddenly in Honolulu, Hawaii when on his way back to Australia after a holiday in USA, with his wife.

The writer took over the running of the VK3 Inwards QSL Bureau from Noel in early 1961 — we had the easiest of handovers — one could wish for due to Noel's being up-to-date with the Bureau affairs! VK3ZO, a PMG Telephone Technician of long standing, had not enjoyed good health for the past two years and had had a bout of hospitalisation, but recovered sufficiently to enable him to commence (and almost finish) one his big wish of visiting Uncle Sam's country. He operated CW mainly, almost daily, from way back. His body was cremated and brought back to Australia.

Eric Trebilock L30042

QSP

FM Bc BAND

It is interesting to note from circular letter B112 (T118) of 21st March from the Sec. of the ABCB that interested purchasers of FM receivers should be advised that only those covering the whole frequency range 88 to 108 MHz will provide adequate reception of the developing amateur FM service. He advises that action is being taken now to transfer the Newcastle national TV station from Ch 5 (101-108 MHz) to Ch 5A to free the band 101-108 MHz for FM transmissions in Sydney and Newcastle.

SILENT KEY

WARWICK PARSONS VK5PS

The sudden death of Warwick a few days before Christmas left all of us stunned at its unexpectedness. Talking with him a month before, he was full of plans for making the bands on SSB with a new FT200, quite an event for such a CW man.

But the "Reaper" is no respector of our personal plans for the future and we, his friends, are the poorer for Warwick's passing.

Warwick was associated with the Council of the VK5 division from immediately after the war until his death, having held the offices of Vice-President, President, Immediate Past-President and Public Officer. During that time we remember how highly regarded were his Divisional notes to AR, and the weekly contribution to the "Advertiser" under his callsign P5S which did much to keep a good image of amateur radio before the public.

Whenever there was something to be done for the Institute, Warwick would be there assisting in his usual quiet way. So we find him captaining the CW team at the Annual Picnic CW/Phone cricket match, a delightful experience for all, for his sense of fun and the ridiculous was so characteristic of Warwick that we will always remember him thus. As late as November last we were "entertained" at one of his legendary "auctions" when most of us were privileged to see him in action for the last time.

Warwick was no "Yes" man. He held very strong principles and put them into practice, speaking his mind forcefully, but with due regard to the feeling of others. Thus he was an excellent chairman at Institute meetings, never forgetting that Amateur Radio is a hobby.

He had three great loves: love for his family, love for Amateur Radio, love for the Institute.

His greatest love was for his family and it is to them that our hearts go out in sympathy and compassion.

May they take comfort in the knowledge that Warwick was respected and loved by many including those who attended his funeral at Centennial Park, and by all who counted it a privilege to know him.

Warwick Parsons VK5PS was one of Amateur Radio's "GREATS".
VK5XU

HAM HEADQUARTERS!

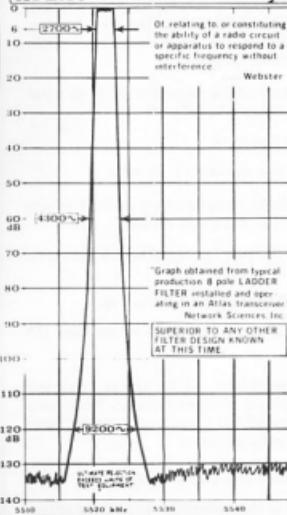
**IC21A - \$298 DV-21 - \$298
BOTH FOR \$570**

DV-21 DIGITAL VFO employs a PLL synthesised system with 59 ICs, 34 transistors, 1 FET and 37 diodes. It can be INTERFACED with the IC21 or any 2m transceiver with 44-45 MHz rx 18 MHz tx, 10.7MHz i.f., lvar side heterodyne, 8 x basic freq. for tx and 3 or 9 x basic freq. for rx. Only a slight modification is required for such equipment and is detailed in the operating manual. It operates in 5 or 10 KHz steps from 146 to 148 MHz and can scan either empty frequencies, or the frequencies being used, whichever you select. Complete separate selection of the transmit and receive frequencies is as simple as touching the keys. When you transmit, bright easy to read LEDs display your frequency. Release the mic switch and the receive frequency is displayed. These are two programmable memories for your favorite frequencies. You won't believe the features and versatility of the DV-21 until you've tried it. Price \$298 includes VICOM 90-day warranty.

THE IC21A is the 10w base station or mobile (146-148 MHz) with variable power control, adjustable deviation, 24 channels, built-in discriminator meter, S meter, SWR meter, PA protection, modular circuitry, runs from 13v DC or 240v AC. Complete with three channels. Price \$298

INSPECT ALL THE QUALITY ICOM PRODUCTS
AT OUR SHOW ROOMS.

ATLAS-210: Se-lec-tiv-i-ty !!!



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SEIWA SV-230 2M FM, mobile incl 3 channels, 25 watts! \$210



6 METRES SSB

YAESU TS-620B transceiver (new release) \$435

TRIO TRANSVERTER TV-506 \$212

ICOM IC-501 TRANSCEIVER \$445

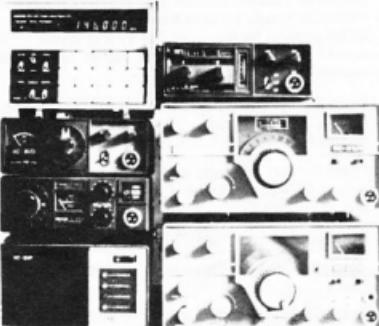
2 METRES SSB

YAESU FT-220 SSB/CW/FM solid state transceiver \$480

TRIO TRANSVERTER TV-502 \$243

AUSTRALIA'S BEST SELLING 2M-FM rig - the IC-22A

IC22A 2M FM TRANSCEIVER replaces the IC22 and is identical electronically, but features a redesigned front panel with easier-to-read channel selection. It features switchable power 1 or 10 watts, 22 channels, solid state T/R relay, built-in PA protection, filtered d.c. voltages. The unit comes complete with mounting brackets, microphone, cables, etc. and three channels - 1/4/50. Price is \$210 incl. tax and VICOM 90-day warranty.



HF TRANSCEIVERS

Atlas-210/215	\$570
SSB Transceiver	\$570
Atlas 210M/215M (Mars Model)	\$585
AR-230 Power Supply ..	\$150
AR-200 Portable AC Power Supply ..	\$96
Mobile Mounting Bracket Deluxe Plug-in Model ..	\$47
DC Battery Cable	free
Mobile Bracket Kit	\$6

OTHER HF GEAR . .

YAESU FT101B 160/10mx AC-DC transceiver. Avl EX-STOCK at \$585.
— YAESU FT-101B VFO for FT101B — \$102.
YAESU FT75B 80w pep transceiver — \$245.
— AC power supply \$65, DC power supply — \$75.
TRIO TS-520 all band transceiver — \$550.
— external VFO \$80
YAESU FT-201S \$505
YAESU FT-2100B Linear \$388

TEST GEAR

TRIO CS1557 CRO DC-10MHz \$340
TRIO VT108 FET VOM 8 ranges 0.5 to 1.5kv, 11 meg input ohms 0.1 to 1000 meg, memory feature \$85
TRIO AG202A AUDIO GENERATOR covers 20Hz to 200-KHz 10v rms output, sine and square wave, ext sync \$94
TRIO 75mm scope 20mv/cm sens, dc to 1.5 MHz \$170
TRIO SG402 RF GENERATOR covers 100KHz to 30MHz \$76
D-60 FREQUENCY COUNTER including 2 metre prescaler \$360
GILCO 275 0-15 MHz frequency counter \$210

Persons not in possession of the appropriate certificate of proficiency will not be sold amateur equipment.

GEELONG: Phil Fitzherbert

A.C.T.: Andrew Davis, 32 Kalgoorlie Cres, Fisher, 2611 Ph (062) 884899

QLD: db Electronics, 21 Christine Ave., Miami, 4220 Ph (075) 351798

W.A.: Avio Electric, 264 High Rd, Riverton, 6155 Ph (092) 574060

Manager: Peter Williams

Ph (052) 436033



SOLID STATE

SINGLE SIDEBAND

TRANSCEIVER



The Sensational ATLAS-210/215

TRANSMITTER SPECIFICATIONS:

- Circuit:** Broadband design eliminates transmitter tuning. Single conversion from I.F. to output frequency. Includes ALC and infinite VSWR protection.
- Frequency Control:** Internal VFO automatically provides transmission on exactly the same frequency as is being received. Rear socket provides for plug-in of 2nd VFO or crystal oscillator for separate control of transmit and receive frequencies, or for network and MARS operation.
- Power Rating:** 200 Watts P.E.P. Input and CW input on 160, 80, 40, 20, and 15 meters. 120 Watts on 10 meters. (50 ohm resistive load 13.6 volt D.C. supply).
- Power Output:** 80 watts minimum P.E.P. on 160 through 15 meters, 40 watts minimum P.E.P. on 10 meters. (100 watts typical on 160 through 15. 50 watts typical on 10 meters.)
- Emission:** SSB (selectable USB or LSB), and CW.
- Unwanted Sideband Suppression:** Better than 60 db at 1000 cycles.
- Carrier Suppression:** More than 50 db below peak power.
- Intermodulation Distortion:** Approximately 30 db below power.
- Spurious and Image Output:** More than 40 db below rated power.
- Harmonic Output:** More than 35 db below rated power.
- CW Keying:** Manual send-receive. Semi-break-in when VOX accessory is installed in AR-117 power supply.
- Transmit Control:** Press-to-talk with mic. button, or manual transmit with panel function switch. Automatic voice control when VOX accessory is installed in AR-117 power supply.
- Microphone:** Dynamic or Crystal. Plug requirement: Standard phone plug, 3 circuit, $\frac{1}{8}$ in. diam.

RECEIVER SPECIFICATIONS:

- Super Selectivity:** A new 8 pole ladder design crystal filter provides unequalled selectivity. Frequency: 5520 kc. Bandwidth at 6 db: 2.7 kc for audio bandpass of 300 to 3000 cycles. Bandwidth at 60 db down is 4.3 kc. Bandwidth at 120 db is only 9.2 kc!! Ultimate rejection is greater than 130 db!!
- Circuit Design:** No preamplification of signals. After passing through tuned circuits the signals are coupled into a low noise mixer using a double balanced diode ring. This provides exceptional immunity to overload and cross modulation, outperforming any receiver with R.F. amplifier.
- Sensitivity:** Requires less than 0.3 microvolts for 10 db signal-plus-noise to noise ratio. (Typically 0.2 μ V.)
- Image Rejection:** Better than 60 db.
- Internal Spurious:** Less than equivalent 1 μ V signal.
- AGC Characteristics:** Audio output constant within 4 db with signal variation from 5 μ V to more than 3 volts.
- Overall Gain:** Requires less than 1 μ V signal for 0.5 watts audio output. (CW carrier.)
- Audio Fidelity:** 300-3000 cycles, plus or minus 3 db.
- Audio Power:** 2 watts to a 3 ohm speaker, less than 10% distortion.
- Internal Speaker:** 3 inch, 3 ohm, .68 oz. magnet. Rear jack permits plug-in of headphones or external speaker. When Transceiver is plugged into the AR-117 power supply, a front facing 3 x 5 speaker is automatically connected.
- Meter:** Reads S units from 1 to 9, plus 10 to 50 db.
- Calibrator:** Provides 100 kc check points for accurate dial setting.

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